

ANALYTICAL REPORT

Job Number: 280-106852-1

Job Description: FAY-2018 Residential Sampling

For:

Chemours Company FC, LLC The
c/o AECOM
Sabre Building, Suite 300
4051 Ogletown Road
Newark, DE 19713

Attention: Michael Aucoin



Approved for release.
Michelle A Johnston
Project Manager II
3/8/2018 10:35 AM

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03/08/2018

cc: Barbara McGraw
Kelly Rinehimer

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

TestAmerica Laboratories, Inc.

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
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Definitions/Glossary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-106852-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

Glossary

Abbreviation

These commonly used abbreviations may or may not be present in this report.

✉	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

TestAmerica Denver

CASE NARRATIVE
Client: The Chemours Company FC, LLC
Project: FAY-2018 Residential Sampling
Report Number: 280-106852-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

For samples requiring analysis at a dilution, the dilution factor has been multiplied by the Method Detection Limit (MDL) for each analyte and evaluated versus the project-specific reporting limit (PSRL). If the obtained value is below the PSRL, then the PSRL is preserved as the reporting limit for the diluted result, otherwise, the obtained value becomes the reporting limit. This is done in order to maintain the PSRL to meet project requirements at the request of the client and to report the lowest possible RL for each analyte.

Receipt

The samples were received on 3/1/2018 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C. No anomalies were observed during sample receipt.

Standards

Analytical standards were prepared using the acid form of the compound Perfluoro(2-propoxypropanoic) acid (HFPO-DA).

The surrogate compound, 13C3 HFPO-DA was introduced at the extraction step and was used as an internal standard for quantitation of HFPO-DA. The concentration of the surrogate spike is 0.2ug/L in water samples or 50ug/kg in soil samples.

Sample Extraction and Analysis

The samples presented in this report were extracted for the target analyte by TestAmerica Denver's SOP DV-OP-0019, Rev. 8 and analyzed for the target analyte by TestAmerica Denver's SOP DV-LC-0012, Rev. 14, with the exceptions of the items indicated in the DuPont QAS.

For water samples a 250mL aliquot of each sample is extracted using solid phase extraction technique with methanol conditioned Weak Anion Exchange cartridges. Each sample is spiked with the internal standard/surrogate, prior to extraction. After the sample is passed through the cartridge, the analytes are eluted with 2%Formic Acid, 6mLs of HPLC grade MeOH and then with 4mL of 10% ammonium hydroxide in methanol. The final volume is brought to 5mL using reagent water and the extract is analyzed by LC/MS/MS.

The target analyte is separated from other components on a high-performance liquid chromatography (HPLC) C18 column with a mobile phase mixture of water containing 0.1% ammonium acetate and methanol. The mass spectrometer detector is operated in the electrospray (ESI) negative ion mode. The instrument is calibrated at 7 concentration levels (0.2, 0.5, 1.0, 2.0, 5.0, 10 and 20ug/L). The target analyte is detected as the perfluoro(2-propoxypropanoic) acid with the parent ion of 328.8 amu. The daughter ions used for analysis by LC/MS/MS are at 284.8 amu. The ratio of the peak areas to the two ions must be $\pm 20\%$ of the ion ratios in the mid-point ICAL for qualitative identification. Sample results are quantitated using the internal standard dilution.

Tuning and Calibration

The instrument is tuned with a solution of the target analyte such that mass assignments are within ± 0.5 amu of the daughter ions. The instrument is calibrated with seven concentration levels from 0.2ug/L to 20ug/L. Linear regression ($y=ax+b$) or quadratic functions ($y=ax+cx^2+b$) are used with a correlation coefficient or coefficient of determination ≥ 0.990 .

Following initial calibration (ICAL), an initial calibration blank (ICB) is tested, which consists of methanol spiked with the surrogate. The result for the target analyte must be less than one half the reporting limit (RL) to proceed.

Next an initial calibration verification (ICV) standard is tested. This is a mid-level concentration standard from a different vendor from the ICAL standard. If a different vendor is not available then, a different lot number from the same vendor is used. The ICV must be within 80-120% of the true value.

The quantitation limit verification standard is a standard from the same source as the ICAL tested run at the RL level to determine accuracy near the detection limit. This recovery must be within 70-130%.

Continuing calibration verification (CCV) standards are tested every 10 injections and are from the same source as the ICAL and are at mid-level concentration. The recovery of the CCVs must be 70-130% or recalibration is necessary.

Method QC Samples

The Method Blank is processed reagent water spiked with internal standard and prepared with each batch of 20 samples of the same

matrix. All samples in the batch are processed at the same time and with the same reagents. The method blank must be less than the LOD or associated batch samples must be re-extracted and reanalyzed.

Each batch is prepared with a low- and a mid-level concentration spike Laboratory Control Samples (LCS). The recoveries of these samples must be within 70-130% or associated batch samples must be re-extracted and reanalyzed. If the recovery is biased high and samples are non-detect, results can be reported without re-extraction.

Calculations

Sample Result Calculation

For internal standard quantitation,

$$\text{HFPO-DA Response} = \text{Area of HFPO-DA} * 13\text{C3 HFPO-DA concentration} / \text{area of } 13\text{C3 HFPO-DA}$$

Concentration in waters, ug/L = $(\text{Cex } V_t) / (\text{V}_o)$

Where:

Cex = Concentration measured in sample extract from the target analyte response (ng/mL)

V_t = Volume of total extract (mL)

V_o = Volume of water extracted (mL)

2. Percent Recovery Calculation

$$\text{Spike Recovery} = (\text{SSR}-\text{SR}) / (\text{SA}) \times 100\%$$

Where:

SSR = Spike sample result

SR = Sample result

SA = Spike added

3. Relative Percent Difference Calculation

$$\text{RPD} = (\text{SR} - \text{DR}) / (1/2(\text{SR} + \text{DR})) \times 100$$

Where:

SR = Sample result

DR = Duplicate result

HFPO-DA Analysis Anomalies

Samples FAY-D-FB022618 (280-106852-1), FAY-D-6379TABOR-W1-1-022618 (280-106852-2) and FAY-D-6379TABOR-W1-2-022618 (280-106852-3) were analyzed for Perfluorinated Hydrocarbons in accordance with DV-LC-0012. The samples were prepared on 03/06/2018 and analyzed on 03/07/2018.

Calibration 9 (STD125) has been included in the raw data, but was not used in the Initial Calibration (ICAL).

Reporting limits have been adjusted accordingly for the initial volumes extracted.

The low-level LCS (LLCS) associated with prep batch 280-407006 exhibited a percent recovery above the control limits for HFPO-DA. The mid-level LCS and LCSD were in control. The LLCS is performed to demonstrate laboratory performance near the reporting limit for the method. In addition, the mid-level LCS/LCSD results show that the extraction was in control at these levels. As the associated samples were non-detect, corrective action was not performed.

The project required MS and Sample Duplicate could not be performed for prep batch 280-407006, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable mid-level LCS/LCSD analyses data.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Fluorochemical Characterization of Water Samples Analytical Results

Chemours Sample Identification	TestAmerica Sample Identification	Collection Date/Time	Date Sample Received by TestAmerica	Analysis Date	HFPO-DA# (ug/L**)
FAY-D-FB022618	280-106852-1	2/26/2018 7:21	3/1/2018	3/7/2018	<0.010

HFPO-DA – hexafluoropropylene oxide dimer acid, analyzed by method DV-LC-0012, Revision 14.

< = less than the stated value

** ug/L – micrograms/liter (parts per billion)

DEFINITIONS:

Reporting Limit (RL) for the procedure is approximately 0.010ug/L.

RESULTS ARE CALCULATED ACCORDING TO THE FOLLOWING CRITERIA:

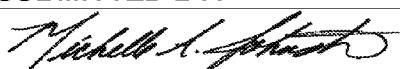
For samples analyzed in duplicate:

If the sample and laboratory duplicate are greater than 5X RL, the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample or laboratory duplicate are less than 5X RL, and the absolute difference is less than RL, the average value is reported. If the absolute difference is greater than the RL, the higher value is reported.

Matrix Spike Recoveries:**Acceptable Range: 70%-130%**

The project required MS and Sample Duplicate could not be performed for prep batch 280-407006, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable mid-level LCS/LCSD analyses data.

SUBMITTED BY:

3/8/2018

Michelle A. Johnston, Project Manager

Date

Fluorochemical Characterization of Water Samples Analytical Results

Chemours Sample Identification	TestAmerica Sample Identification	Collection Date/Time	Date Sample Received by TestAmerica	Analysis Date	HFPO-DA# (ug/L**)
FAY-D-6379TABOR-W1-1-022618	280-106852-2	2/26/2018 13:56	3/1/2018	3/7/2018	<0.010

HFPO-DA – hexafluoropropylene oxide dimer acid, analyzed by method DV-LC-0012, Revision 14.

< = less than the stated value

** ug/L – micrograms/liter (parts per billion)

DEFINITIONS:

Reporting Limit (RL) for the procedure is approximately 0.010ug/L.

RESULTS ARE CALCULATED ACCORDING TO THE FOLLOWING CRITERIA:

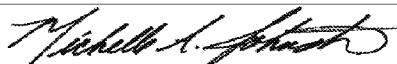
For samples analyzed in duplicate:

If the sample and laboratory duplicate are greater than 5X RL, the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample or laboratory duplicate are less than 5X RL, and the absolute difference is less than RL, the average value is reported. If the absolute difference is greater than the RL, the higher value is reported.

Matrix Spike Recoveries:**Acceptable Range: 70%-130%**

The project required MS and Sample Duplicate could not be performed for prep batch 280-407006, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable mid-level LCS/LCSD analyses data.

SUBMITTED BY:

3/8/2018

Michelle A. Johnston, Project Manager

Date

Fluorochemical Characterization of Water Samples Analytical Results

Chemours Sample Identification	TestAmerica Sample Identification	Collection Date/Time	Date Sample Received by TestAmerica	Analysis Date	HFPO-DA# (ug/L**)
FAY-D-6379TABOR-W1-2-022618	280-106852-3	2/26/2018 13:57	3/1/2018	3/7/2018	<0.010

HFPO-DA – hexafluoropropylene oxide dimer acid, analyzed by method DV-LC-0012, Revision 14.

< = less than the stated value

** ug/L – micrograms/liter (parts per billion)

DEFINITIONS:

Reporting Limit (RL) for the procedure is approximately 0.010ug/L.

RESULTS ARE CALCULATED ACCORDING TO THE FOLLOWING CRITERIA:

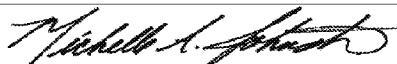
For samples analyzed in duplicate:

If the sample and laboratory duplicate are greater than 5X RL, the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample or laboratory duplicate are less than 5X RL, and the absolute difference is less than RL, the average value is reported. If the absolute difference is greater than the RL, the higher value is reported.

Matrix Spike Recoveries:**Acceptable Range: 70%-130%**

The project required MS and Sample Duplicate could not be performed for prep batch 280-407006, due to insufficient sample volume. Method precision and accuracy have been verified by the acceptable mid-level LCS/LCSD analyses data.

SUBMITTED BY:

3/8/2018

Michelle A. Johnston, Project Manager

Date

Executive Summary

Client: Chemours Company FC, LLC The

Job Number: 280-106852-1

8321A : HFPO-DA

Lab Sample ID	Client Sample ID	Analyte	Individual Result (ug/L)	Final Result (ug/L)	RL
280-106852-1	FAY-D-FB022618	HFPO-DA	<0.010	<0.010	0.010
280-106852-2	FAY-D-6379TABOR-W1-1-022618	HFPO-DA	<0.010	<0.010	0.010
280-106852-3	FAY-D-6379TABOR-W1-2-022618	HFPO-DA	<0.010	<0.010	0.010

(a) Method 8321A

(b) DUP or REP indicates a laboratory duplicate.

(c) If the sample and laboratory duplicate are both greater than 5X the RL and the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher of the sample and laboratory duplicate value is reported. If the sample and/or laboratory duplicate are less than 5X the RL, and the absolute difference between the sample and laboratory duplicate is less than the RL, the average value is reported. If the absolute difference is greater than the RL, the higher of the sample and laboratory duplicate value is reported. If either the sample or the duplicate result is greater than or equal to the RL and the other is less than the RL, then the higher of the two is reported.

(d) Moisture Determined by ASTM D2216.

(e) Reporting Limit (RL) = The concentration equivalent to the low calibration standard.

Detection Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-106852-1

Client Sample ID: FAY-D-FB022618

Lab Sample ID: 280-106852-1

No Detections.

Client Sample ID: FAY-D-6379TABOR-W1-1-022618

Lab Sample ID: 280-106852-2

No Detections.

Client Sample ID: FAY-D-6379TABOR-W1-2-022618

Lab Sample ID: 280-106852-3

No Detections.

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-106852-1

Client Sample ID: FAY-D-FB022618
Date Collected: 02/26/18 07:21
Date Received: 03/01/18 09:45

Lab Sample ID: 280-106852-1
Matrix: Water

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	<0.010	*	0.010		ug/L		03/06/18 17:00	03/07/18 13:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	68		50 - 200				03/06/18 17:00	03/07/18 13:12	1

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-106852-1

Client Sample ID: FAY-D-6379TABOR-W1-1-022618

Lab Sample ID: 280-106852-2

Date Collected: 02/26/18 13:56

Matrix: Water

Date Received: 03/01/18 09:45

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	<0.010	*	0.010		ug/L		03/06/18 17:00	03/07/18 13:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	70		50 - 200				03/06/18 17:00	03/07/18 13:16	1

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-106852-1

Client Sample ID: FAY-D-6379TABOR-W1-2-022618

Lab Sample ID: 280-106852-3

Date Collected: 02/26/18 13:57

Matrix: Water

Date Received: 03/01/18 09:45

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	<0.010	*	0.010		ug/L		03/06/18 17:00	03/07/18 13:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	69		50 - 200				03/06/18 17:00	03/07/18 13:19	1

Default Detection Limits

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-106852-1

Method: 8321A - HFPO-DA

Prep: 3535

Analyte	RL	MDL	Units	Method
HFPO-DA	0.010	0.0051	ug/L	8321A

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Surrogate Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-106852-1

Method: 8321A - HFPO-DA

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

HFPODA (50-200)

Lab Sample ID	Client Sample ID	HFPODA (50-200)
280-106852-1	FAY-D-FB022618	68
280-106852-2	FAY-D-6379TABOR-W1-1-0226	70
280-106852-3	FAY-D-6379TABOR-W1-2-0226	69
DLCK 280-404345/13	Lab Control Sample	104
LCS 280-407006/2-A	Lab Control Sample	66
LCSD 280-407006/3-A	Lab Control Sample Dup	66
LLCS 280-407006/4-A	Lab Control Sample	68
MB 280-407006/1-A	Method Blank	65

Surrogate Legend

HFPODA = 13C3 HFPO-DA

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QC Association Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-106852-1

LCMS

Analysis Batch: 404345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
DLCK 280-404345/13	Lab Control Sample	Total/NA	Water	8321A	

Prep Batch: 407006

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-106852-1	FAY-D-FB022618	Total/NA	Water	3535	
280-106852-2	FAY-D-6379TABOR-W1-1-022618	Total/NA	Water	3535	
280-106852-3	FAY-D-6379TABOR-W1-2-022618	Total/NA	Water	3535	
MB 280-407006/1-A	Method Blank	Total/NA	Water	3535	
LCS 280-407006/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 280-407006/3-A	Lab Control Sample Dup	Total/NA	Water	3535	
LLCS 280-407006/4-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 407118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-106852-1	FAY-D-FB022618	Total/NA	Water	8321A	407006
280-106852-2	FAY-D-6379TABOR-W1-1-022618	Total/NA	Water	8321A	407006
280-106852-3	FAY-D-6379TABOR-W1-2-022618	Total/NA	Water	8321A	407006
MB 280-407006/1-A	Method Blank	Total/NA	Water	8321A	407006
LCS 280-407006/2-A	Lab Control Sample	Total/NA	Water	8321A	407006
LCSD 280-407006/3-A	Lab Control Sample Dup	Total/NA	Water	8321A	407006
LLCS 280-407006/4-A	Lab Control Sample	Total/NA	Water	8321A	407006

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Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-106852-1

Client Sample ID: Lab Control Sample Dup

Lab Sample ID: LCSD 280-407006/3-A

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250 mL	5 mL	407006	03/06/18 17:00	CDC	TAL DEN
Total/NA	Analysis	8321A		1			407118	03/07/18 12:40	AGCM	TAL DEN

Client Sample ID: Lab Control Sample

Lab Sample ID: LLCS 280-407006/4-A

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250 mL	5 mL	407006	03/06/18 17:00	CDC	TAL DEN
Total/NA	Analysis	8321A		1			407118	03/07/18 12:43	AGCM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver

Accreditation/Certification Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-106852-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
North Carolina (WW/SW)	State Program	4	358	12-31-18

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
8321A	3535	Water	HFPO-DA

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Method Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-106852-1

Method	Method Description	Protocol	Laboratory
8321A	HFPO-DA	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver

Sample Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-106852-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-106852-1	FAY-D-FB022618	Water	02/26/18 07:21	03/01/18 09:45
280-106852-2	FAY-D-6379TABOR-W1-1-022618	Water	02/26/18 13:56	03/01/18 09:45
280-106852-3	FAY-D-6379TABOR-W1-2-022618	Water	02/26/18 13:57	03/01/18 09:45

TestAmerica Denver

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica DenverJob No.: 280-106852-1SDG No.: Instrument ID: LC_LCMS7Analysis Batch Number: 390728Lab Sample ID: STD001 280-390728/3 ICClient Sample ID: Date Analyzed: 10/10/17 09:35Lab File ID: hfpo717J10026.d GC Column: Synergi Hydro ID:

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	0.89	Baseline	meyera	10/10/17 11:50

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Instrument ID: LC_LCMS7

Analysis Batch Number: 404345

Lab Sample ID: STD001 280-404345/3 IC

Client Sample ID: _____

Date Analyzed: 02/08/18 13:05

Lab File ID: hfpo718B08034.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Assign Peak	meyera	02/08/18 15:19

Lab Sample ID: STD002 280-404345/4 IC

Client Sample ID: _____

Date Analyzed: 02/08/18 13:08

Lab File ID: hfpo718B08035.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Baseline	meyera	02/08/18 15:19

Lab Sample ID: DLCK 280-404345/13

Client Sample ID: _____

Date Analyzed: 02/08/18 13:38

Lab File ID: hfpo718B08044.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Baseline	meyera	02/08/18 15:20

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
HFPO I.S._00010	03/06/19	03/06/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00010	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
.13C3 HFPO-DA_00010	03/06/19	Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL	
HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
							HFPO-DA	50 ug/mL
HFPO_CAL-0_00032	02/22/18	02/08/18	PFC Dill_Solvent, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
.13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL	
HFPO_CAL-1_00031	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	HFPO-DA	0.25 ug/L
							13C3 HFPO-DA	0.5 ug/mL
.13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL	
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
.HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPOADA0213		(Purchased Reagent)		HFPO-DA	50 ug/mL	
HFPO_CAL-1_00032	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	HFPO-DA	0.25 ug/L
							13C3 HFPO-DA	0.5 ug/mL
.13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL	
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
.HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	50 ug/mL	
HFPO_CAL-2_00032	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
..13C3 HFPO-DA_00004	08/28/18		Wellington Laboratories, Lot M3HFPOADA0616		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL		
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL		
..HFPO-DA_00003	12/16/18		Wellington Laboratories, Lot HFPOADA0213		(Purchased Reagent)		HFPO-DA	50 ug/mL		
HFPO_CAL-2_00033	02/22/18	02/08/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L		
					HFPO Spike_00004	1 uL	13C3 HFPO-DA (IS)	10 ug/L		
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	HFPO-DA	0.5 ug/mL		
							13C3 HFPO-DA (IS)	0.5 ug/mL		
..13C3 HFPO-DA_00008	01/30/19		Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL		
							13C3 HFPO-DA (IS)	50 ug/mL		
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL		
..HFPO-DA_00004	07/13/20		Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	50 ug/mL		
HFPO_CAL-3_00031	10/24/17	10/10/17	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L		
					HFPO Spike_00003	2 uL	13C3 HFPO-DA (IS)	10 ug/L		
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL		
							13C3 HFPO-DA (IS)	0.5 ug/mL		
..13C3 HFPO-DA_00004	08/28/18		Wellington Laboratories, Lot M3HFPOADA0616		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL		
							13C3 HFPO-DA (IS)	50 ug/mL		
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL		
..HFPO-DA_00003	12/16/18		Wellington Laboratories, Lot HFPOADA0213		(Purchased Reagent)		HFPO-DA	50 ug/mL		
HFPO_CAL-3_00032	02/22/18	02/08/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L		
					HFPO Spike_00004	2 uL	13C3 HFPO-DA (IS)	10 ug/L		
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	HFPO-DA	0.5 ug/mL		
							13C3 HFPO-DA (IS)	0.5 ug/mL		
..13C3 HFPO-DA_00008	01/30/19		Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL		
							13C3 HFPO-DA (IS)	50 ug/mL		
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL		
..HFPO-DA_00004	07/13/20		Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	50 ug/mL		
HFPO_CAL-4_00031	10/24/17	10/10/17	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L		
							13C3 HFPO-DA (IS)	10 ug/L		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO Spike_00003	4 uL	HFPO-DA	2 ug/L
					13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18		Wellington Laboratories, Lot M3HFPOADA0616		(Purchased Reagent)		13C3 HFPO-DA (IS)	0.5 ug/mL
							13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA (IS)	50 ug/mL
..HFPO-DA_00003	12/16/18		Wellington Laboratories, Lot HFPOADA0213		(Purchased Reagent)		HFPO-DA	0.5 ug/mL
								50 ug/mL
HFPO_CAL-4_00032	02/22/18	02/08/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO Spike_00004	4 uL	HFPO-DA	2 ug/L
					13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19		Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA (IS)	0.5 ug/mL
							13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	50 ug/mL
..HFPO-DA_00004	07/13/20		Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	0.5 ug/mL
								50 ug/mL
HFPO_CAL-5_00070	10/24/17	10/10/17	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO Spike_00003	10 uL	HFPO-DA	5 ug/L
					13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18		Wellington Laboratories, Lot M3HFPOADA0616		(Purchased Reagent)		13C3 HFPO-DA (IS)	0.5 ug/mL
							13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	50 ug/mL
..HFPO-DA_00003	12/16/18		Wellington Laboratories, Lot HFPOADA0213		(Purchased Reagent)		HFPO-DA	0.5 ug/mL
								50 ug/mL
HFPO_CAL-5_00080	02/22/18	02/08/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO Spike_00004	10 uL	HFPO-DA	5 ug/L
					13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19		Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA (IS)	0.5 ug/mL
							13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	50 ug/mL
..HFPO-DA_00004	07/13/20		Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	0.5 ug/mL
								50 ug/mL

Reagent

13C3 HFPO-DA_00004



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CERTIFICATE OF ANALYSIS DOCUMENTATION

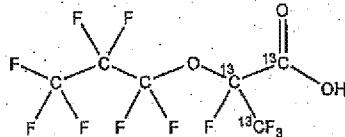
PRODUCT CODE: M3HFPO-DA

LOT NUMBER: M3HFPODA0616

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-¹³C₃-propanoic acid

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: ¹³C₃¹²C₃HF₁₁O₃

MOLECULAR WEIGHT: 333.03

CONCENTRATION: 50 ± 2.5 µg/ml

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: >99% ¹³C

LAST TESTED: (mm/dd/yyyy) 06/25/2016

(¹³C₃)

EXPIRY DATE: (mm/dd/yyyy) 06/25/2019

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 1.5% of two constitutional isomers.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 06/29/2016

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

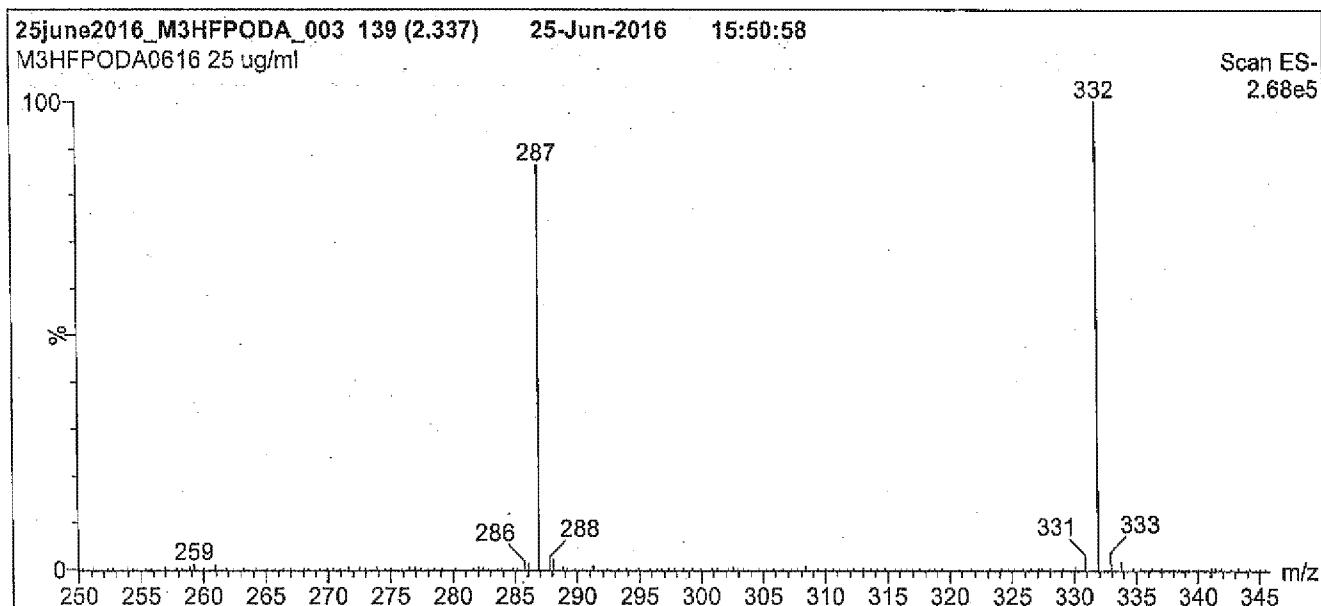
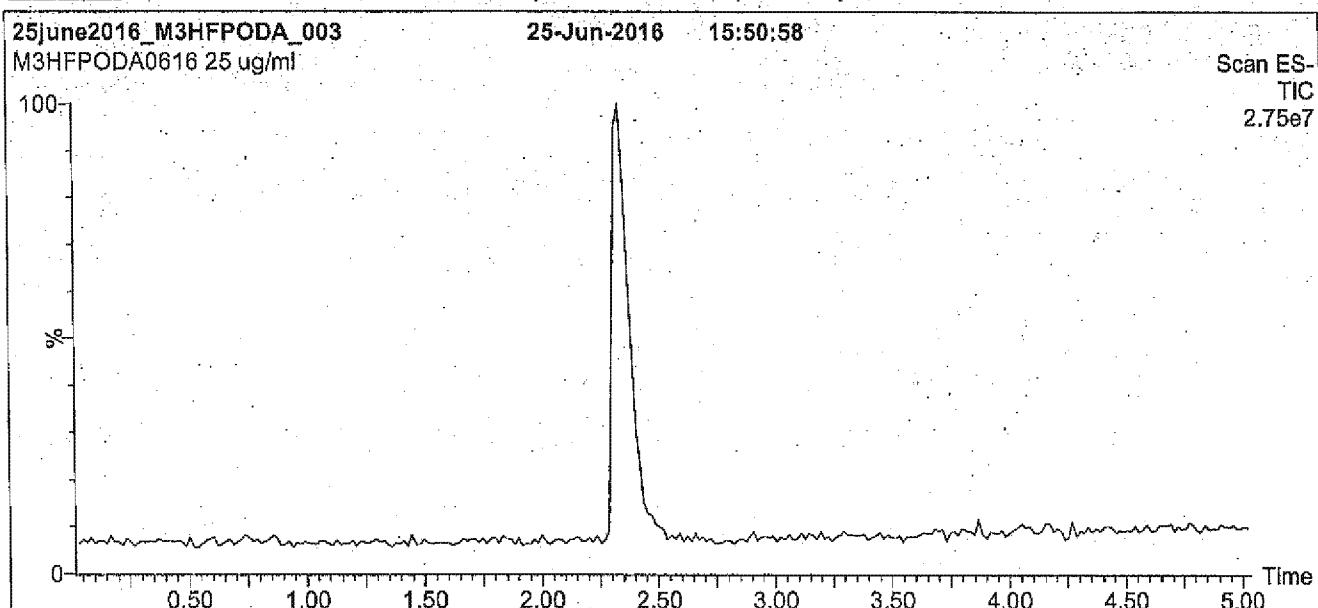
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: M3HFPO-DA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro micro API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP,
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

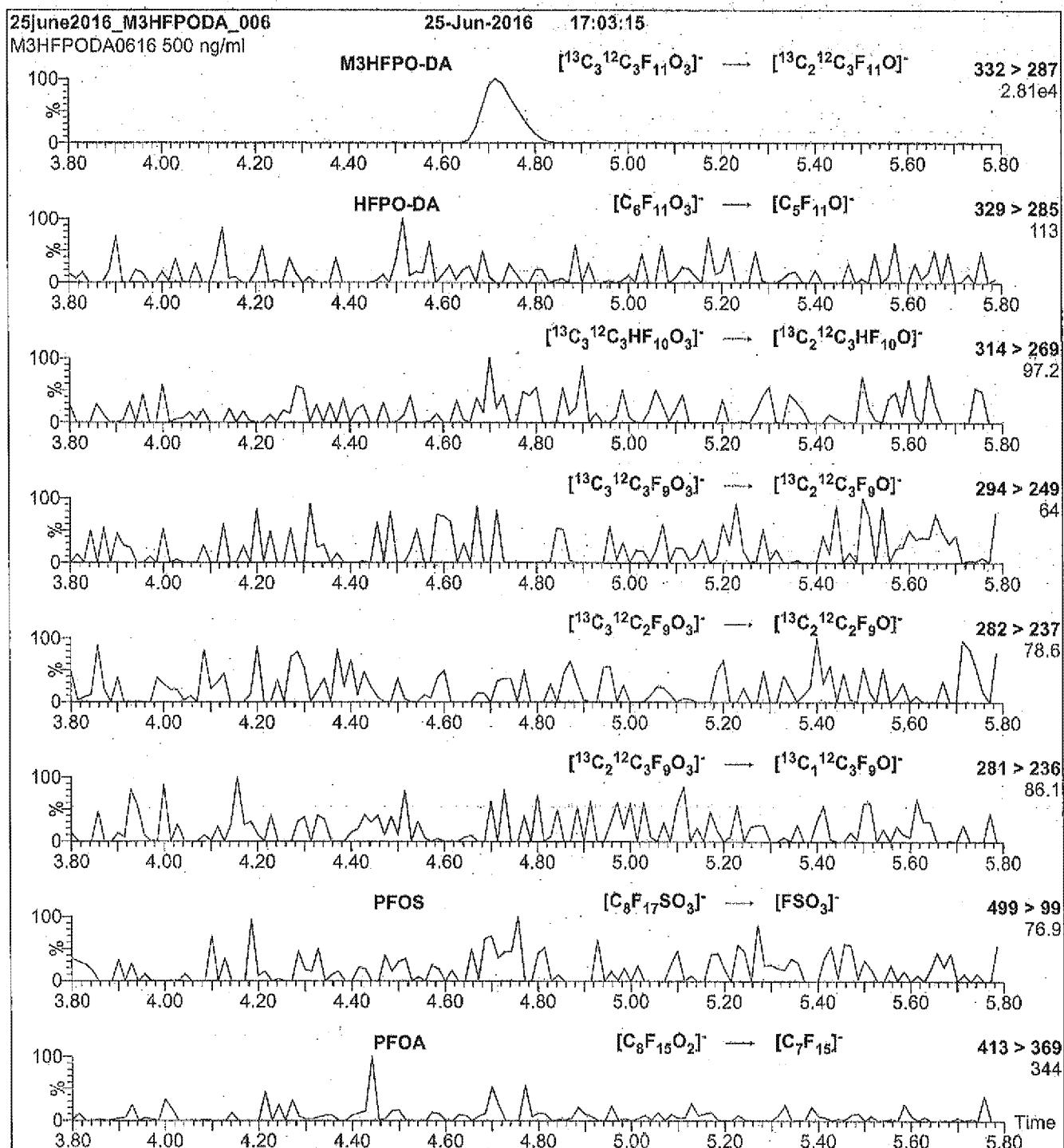
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 9.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: M3HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml M3HFPO-DA)

MS Parameters

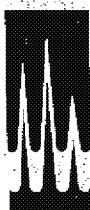
Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 5

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

Reagent

13C3 HFPO-DA_00008



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

M3HFPO-DA

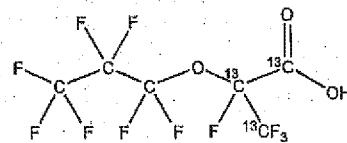
LOT NUMBER: M3HFPODA0817

COMPOUND:

2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-¹³C₃-propanoic acid

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:

¹³C₃¹²C₃HF₁₁O₃

MOLECULAR WEIGHT: 333.08

CONCENTRATION:

50 ± 2.5 µg/ml

SOLVENT(S): Methanol

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY: >99% ¹³C

LAST TESTED: (mm/dd/yyyy)

08/17/2017

(¹³C₃)

EXPIRY DATE: (mm/dd/yyyy)

08/17/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 1.5% of two constitutional isomers.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/25/2017

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • Info@well-labs.com

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UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters

x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

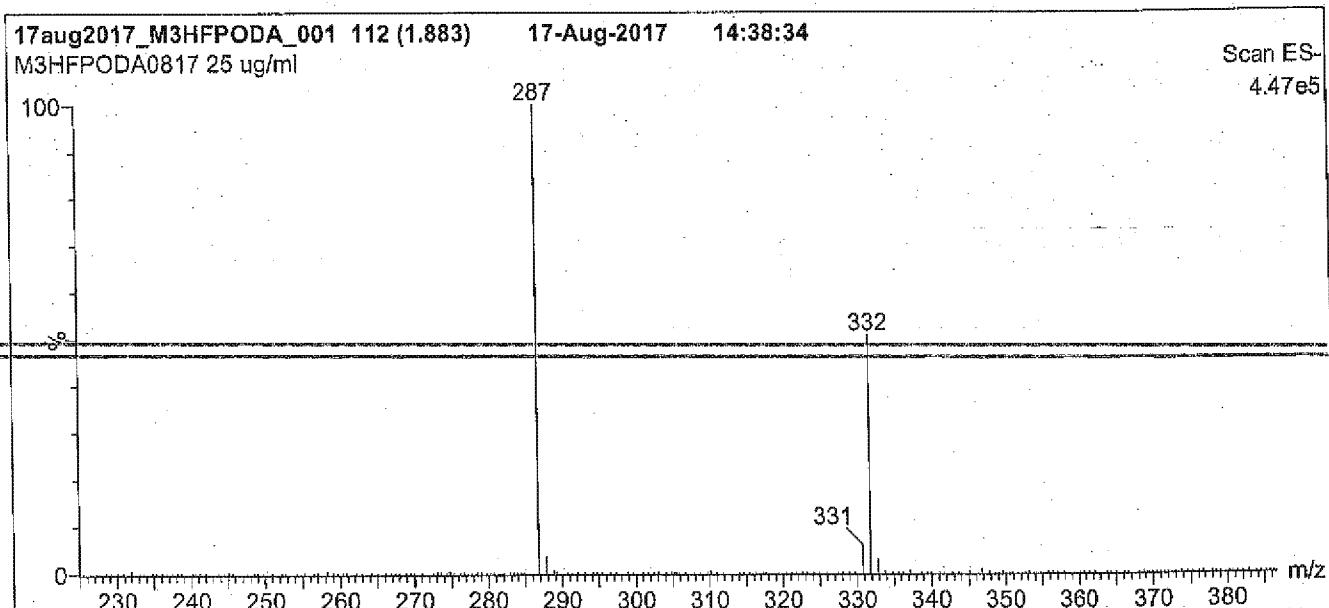
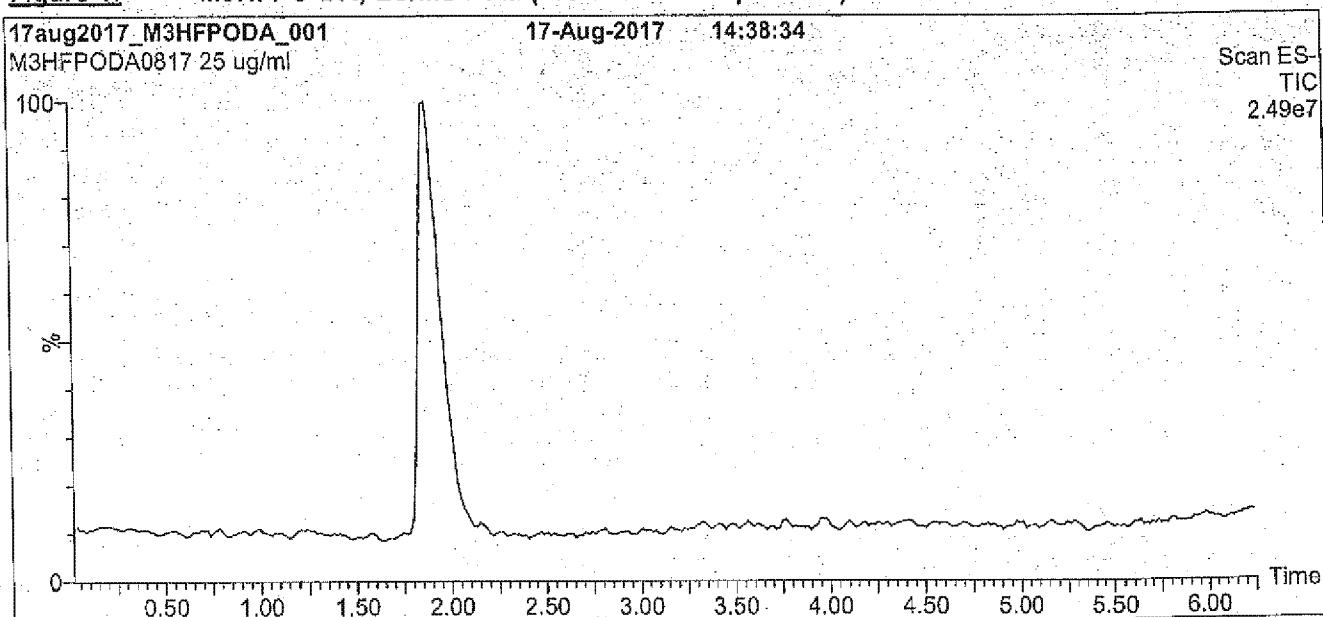
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: M3HFPO-DA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μm, 2.1 x 100 mm

Mobile phase: Gradient

Start: 55% MeOH / 45% H₂O with 10 mM NH₄OAc buffer
 Ramp to 90% organic over 7.5 min and hold for 1.5 min
 before returning to initial conditions in 0.5 min.

Time: 10 min

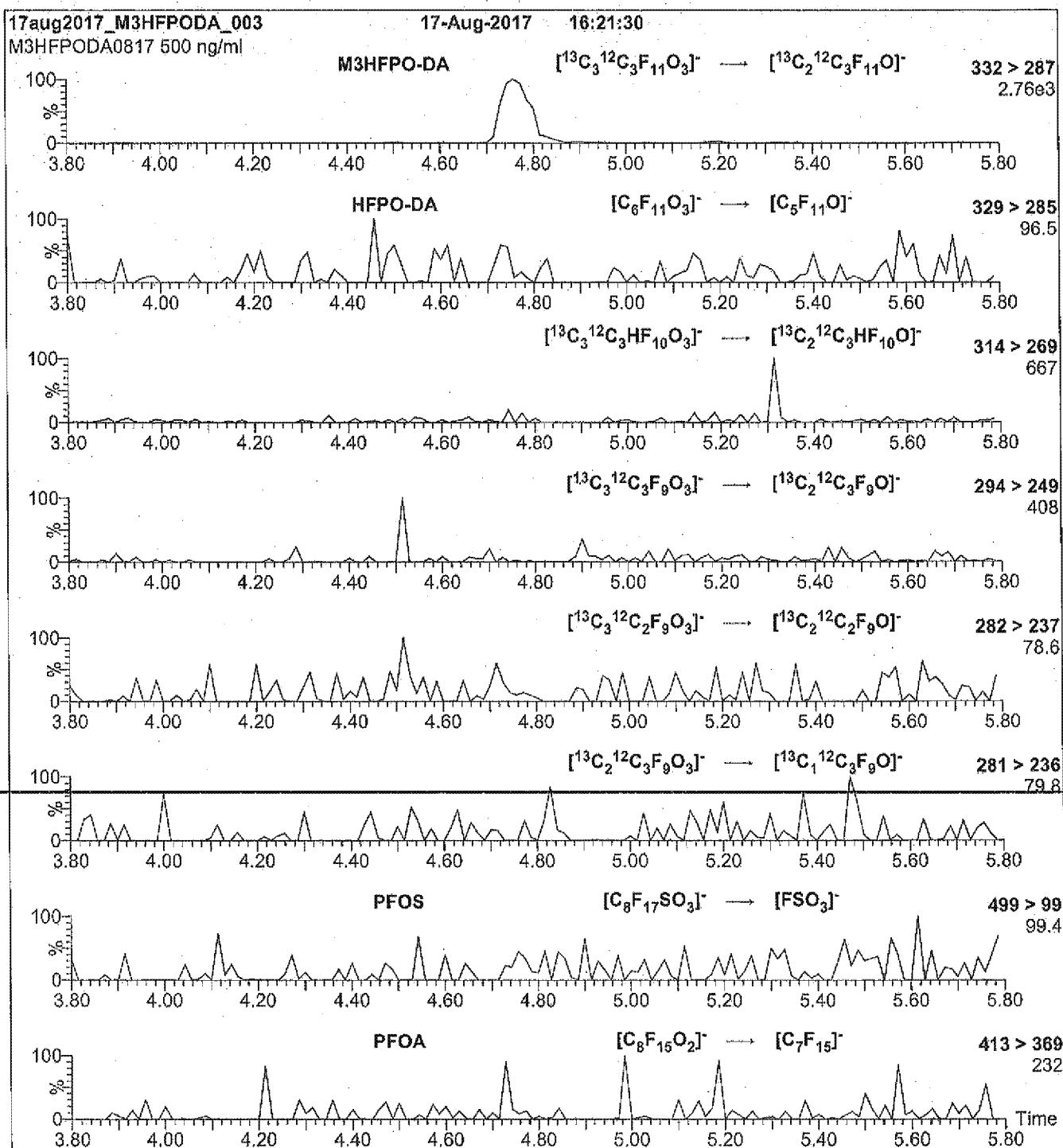
Flow: 300 μl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 3.00
 Cone Voltage (V) = 10.00
 Cone Gas Flow (l/hr) = 100
 Desolvation Gas Flow (l/hr) = 750

Figure 2: M3HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection

10 μ l (500 ng/ml M3HFPO-DA)

Mobile phase: Isocratic 80% MeOH / 20% H₂O wth 10 mM NH₄OAc buffer

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.24e-3

Collision Energy (eV) = 5

Reagent

13C3 HFPO-DA_00009



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

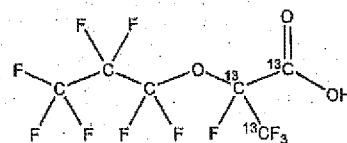
PRODUCT CODE:

M3HFPO-DA

COMPOUND:

2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3-heptafluoropropoxy)-¹³C₃-propanoic acid

STRUCTURE:



LOT NUMBER: M3HFPODA0817

CAS #:

Not available

MOLECULAR FORMULA:

¹³C₃¹²C₃HF₁₁O₃

CONCENTRATION:

50 ± 2.5 µg/ml

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/17/2017

EXPIRY DATE: (mm/dd/yyyy)

08/17/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 333.03

SOLVENT(S): Methanol

ISOTOPIC PURITY: >99% ¹³C

(¹³C₃)

DOCUMENTATION/DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 1.5% of two constitutional isomers.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/25/2017

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • Info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UW/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UW/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

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x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

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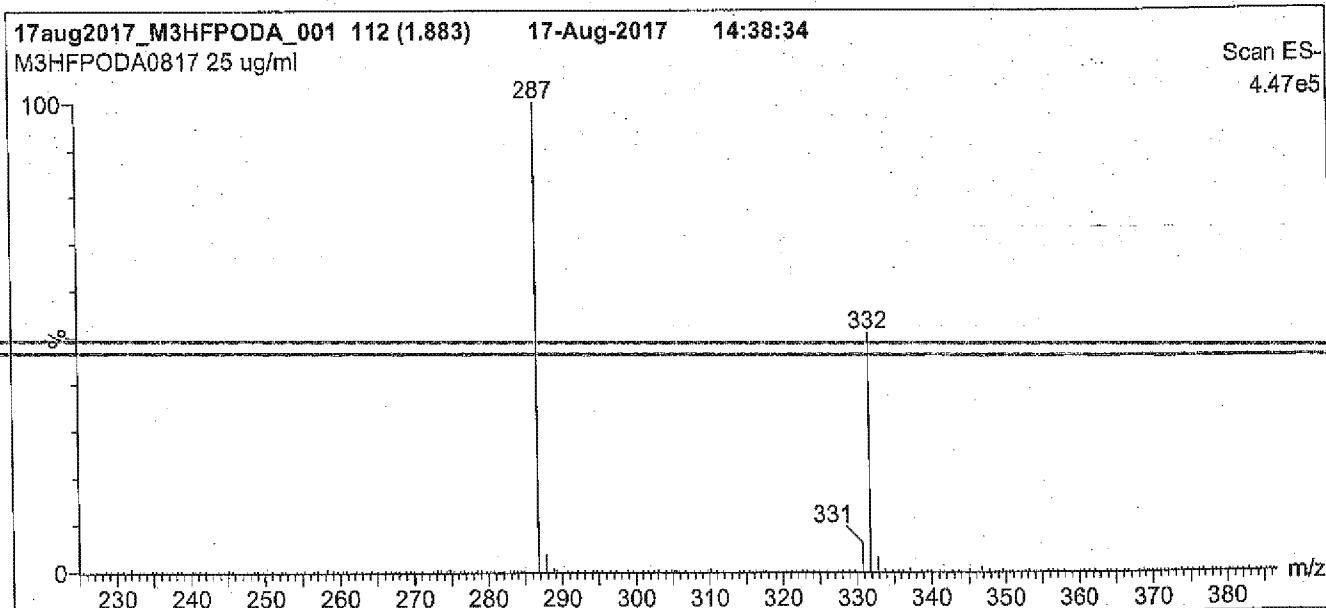
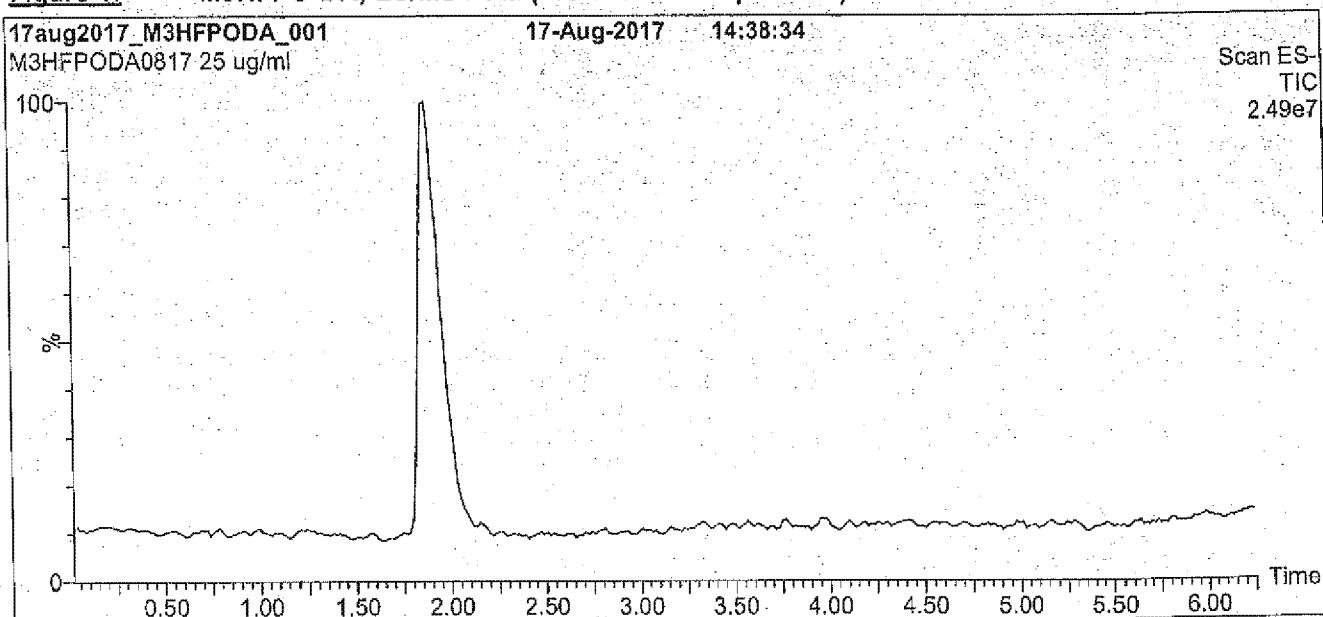
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Figure 1: M3HFPO-DA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μm, 2.1 x 100 mm

Mobile phase: Gradient

Start: 55% MeOH / 45% H₂O with 10 mM NH₄OAc buffer
 Ramp to 90% organic over 7.5 min and hold for 1.5 min
 before returning to initial conditions in 0.5 min.

Time: 10 min

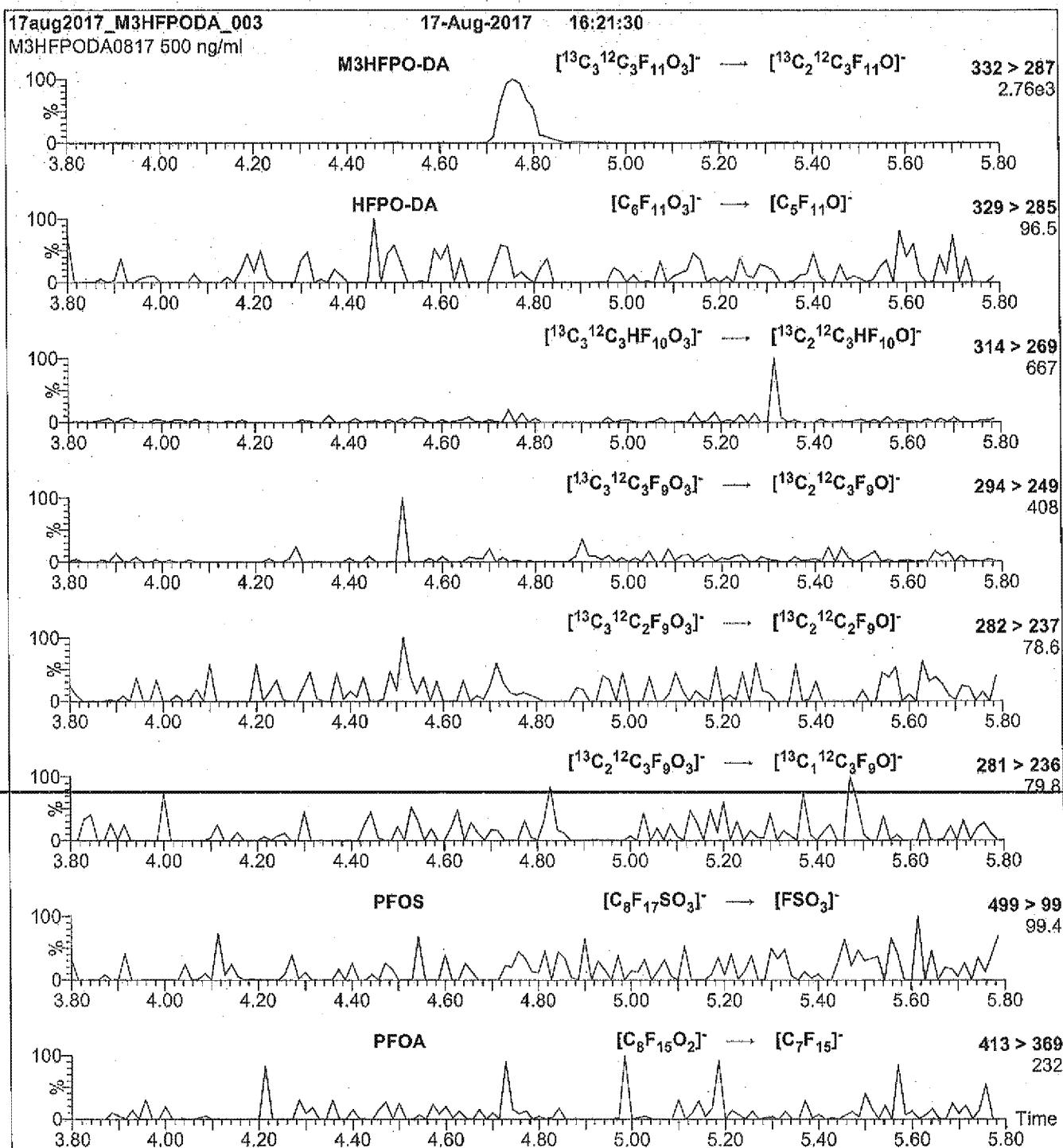
Flow: 300 μl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 3.00
 Cone Voltage (V) = 10.00
 Cone Gas Flow (l/hr) = 100
 Desolvation Gas Flow (l/hr) = 750

Figure 2: M3HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml M3HFPO-DA)

MS Parameters

Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 5

Mobile phase: Isocratic 80% MeOH / 20% H₂O wth 10 mM NH₄OAc buffer

Flow: 300 μ l/min

Reagent

13C3 HFPO-DA_00010



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

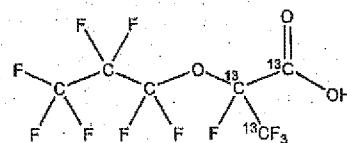
PRODUCT CODE:

M3HFPO-DA

COMPOUND:

2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3-heptafluoropropoxy)-¹³C₃-propanoic acid

STRUCTURE:



LOT NUMBER: M3HFPODA0817

CAS #:

Not available

MOLECULAR FORMULA:

¹³C₃¹²C₃HF₁₁O₃

CONCENTRATION:

50 ± 2.5 µg/ml

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/17/2017

EXPIRY DATE: (mm/dd/yyyy)

08/17/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 333.03

SOLVENT(S): Methanol

ISOTOPIC PURITY: >99% ¹³C

(¹³C₃)

DOCUMENTATION/DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 1.5% of two constitutional isomers.
- Product is commercially known as GenX.

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Certified By:

B.G. Chittim, General Manager

Date: 08/25/2017

(mm/dd/yyyy)

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where x is expressed as a relative standard uncertainty of the individual parameter.

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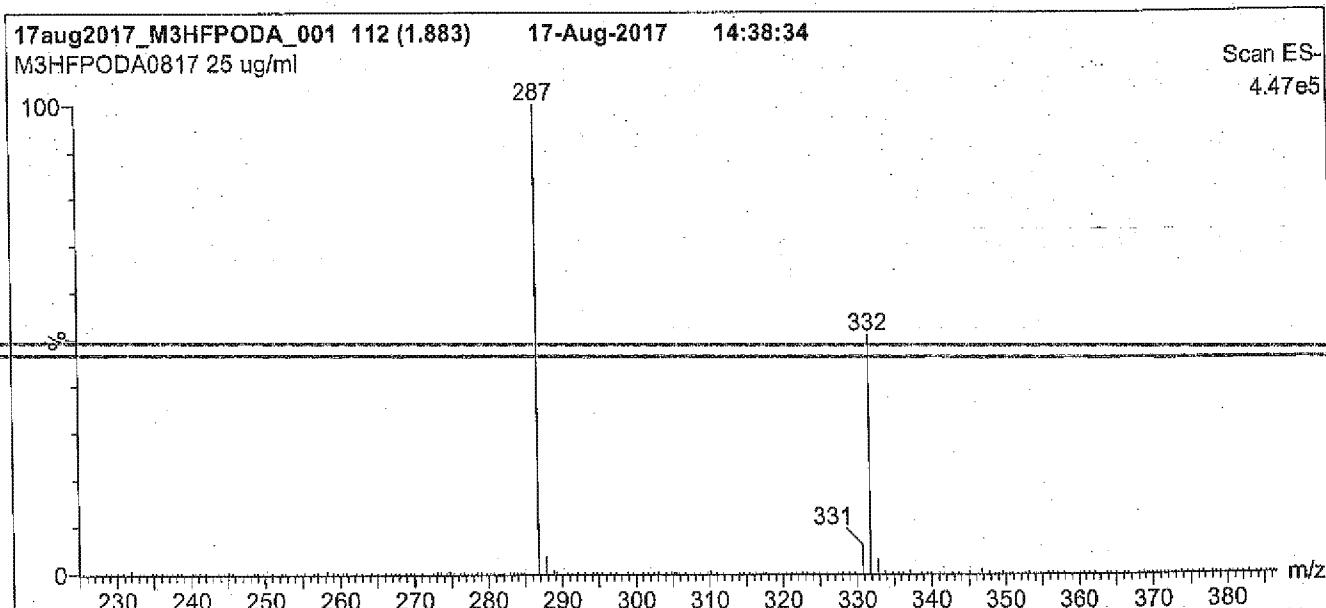
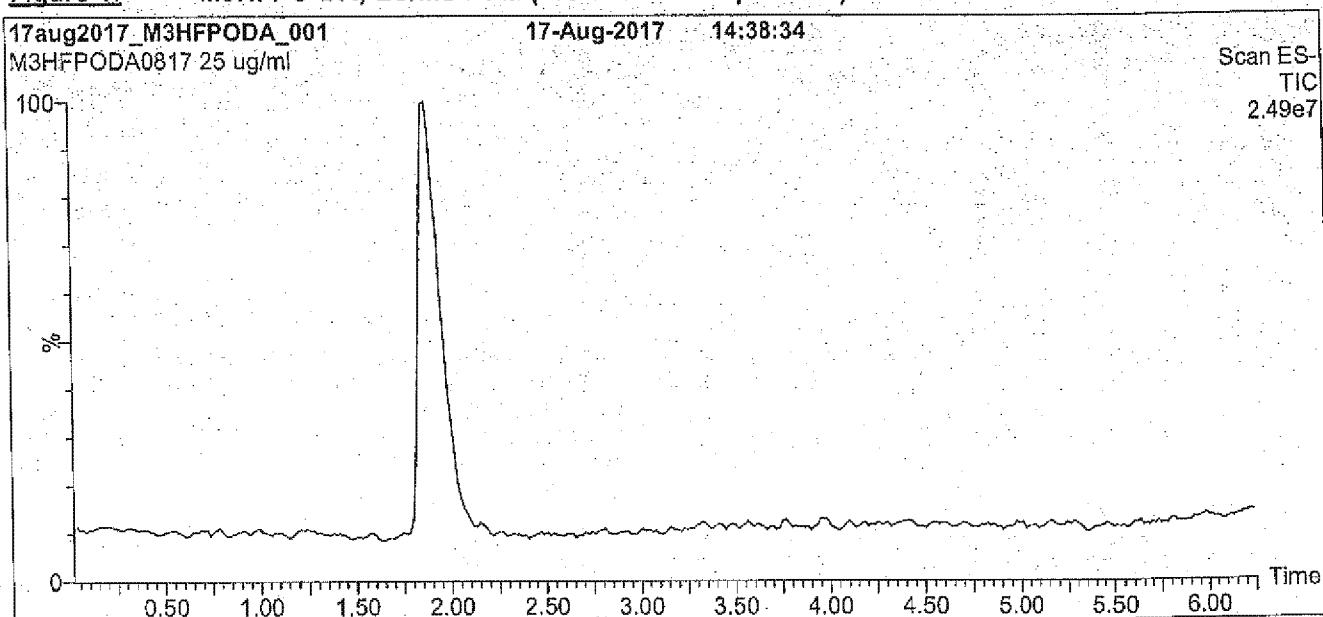
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Figure 1: M3HFPO-DA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μm, 2.1 x 100 mm

Mobile phase: Gradient

Start: 55% MeOH / 45% H₂O with 10 mM NH₄OAc buffer
 Ramp to 90% organic over 7.5 min and hold for 1.5 min
 before returning to initial conditions in 0.5 min.

Time: 10 min

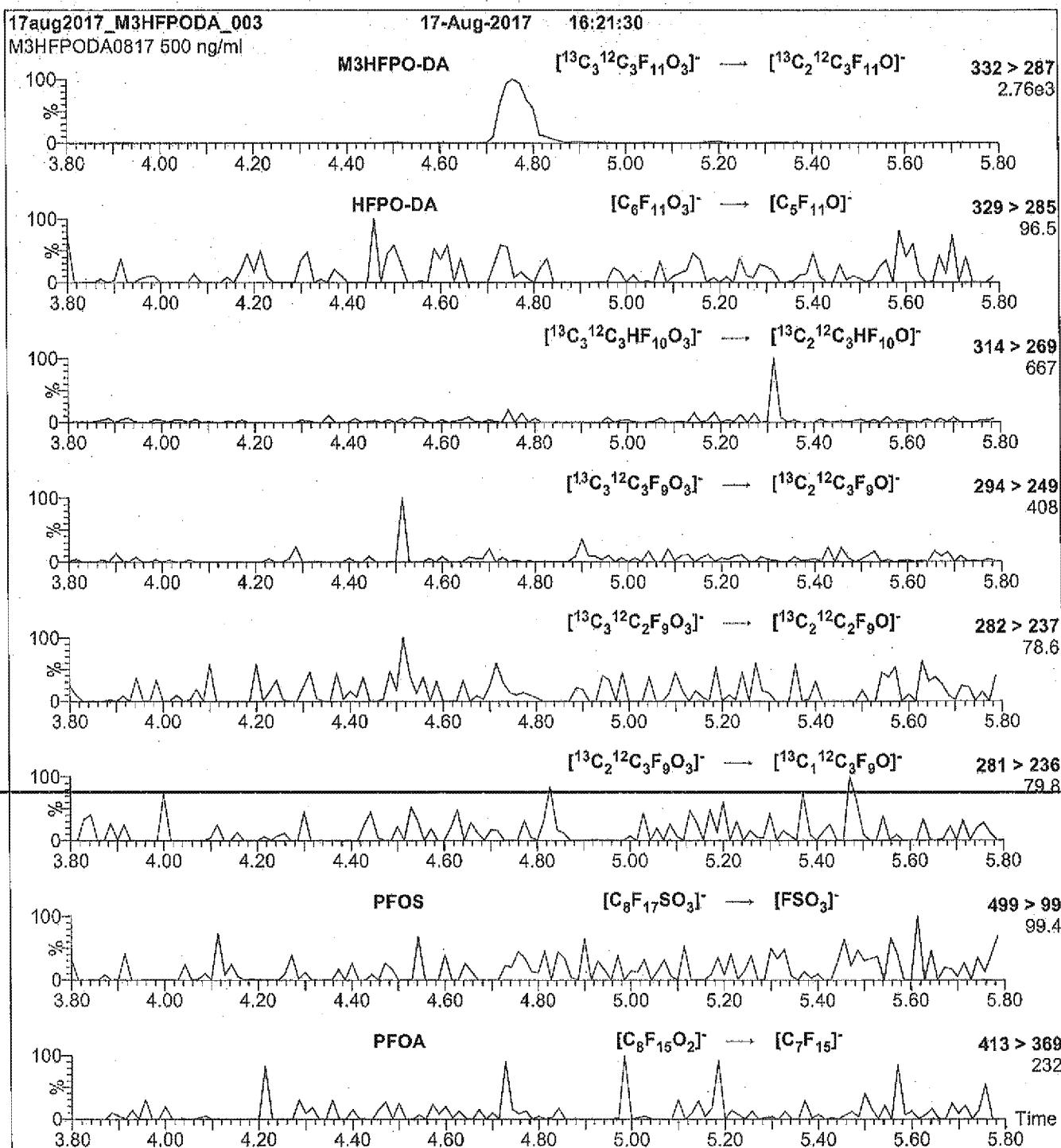
Flow: 300 μl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 3.00
 Cone Voltage (V) = 10.00
 Cone Gas Flow (l/hr) = 100
 Desolvation Gas Flow (l/hr) = 750

Figure 2: M3HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml M3HFPO-DA)

MS Parameters

Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 5

Mobile phase: Isocratic 80% MeOH / 20% H₂O wth 10 mM NH₄OAc buffer

Flow: 300 μ l/min

Reagent

HFPO I.S._00004

**Reagent ID: HFPO I.S._00004**

Description:	Internal Standard for HFPO 0.5ug/ml	Expiration Date:	08/28/2018
No. of Bottles:	1	Laboratory:	TestAmerica Denver
Storage Location:	North Analytical	Prepared By:	Meyer, Andrew GC
Reagent Volume:	100.000 mL	Solvent:	LCMS Grade MeOH
Creation Date:	08/28/2017	Solvent Lot#:	LCMS_MeOH_00110
Open Date:			
Container(s):	4700620		
Comment:			

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Units	Final Conc.	Final Conc. Units
13C3 HFPO-DA	13C3 HFPO-DA_00004	08/28/2018	50.00000	ug/mL	0.50000	ug/mL
13C3 HFPO-DA (IS)	13C3 HFPO-DA_00004	08/28/2018	50.00000	ug/mL	0.50000	ug/mL

Source Recipients

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
13C3 HFPO-DA_00004	13C3 HFPO-DA I.S. for HFPO	ASTD	08/28/18	Wellington Laboratories	M3HFPOADA0616M3HFPO-DA	1.00000	mL	

Ok PW
8/29/17

ataset: Untitled

st Altered: Tuesday, August 29, 2017 10:47:21 Mountain Daylight Time

nted: Tuesday, August 29, 2017 10:47:53 Mountain Daylight Time

ethod: C:\MassLynx\8321.PRO\MethDB\hfpo.mdb 23 Aug 2017 10:19:52

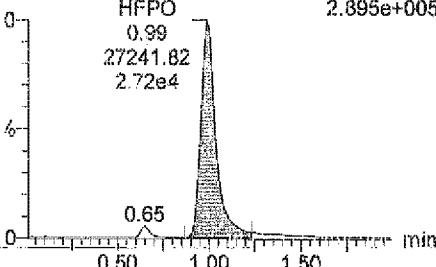
ibration: C:\MassLynx\8321.PRO\CurveDB\hfpo17d24.cdb 24 Apr 2017 13:20:17

sample Name: hfpo717H23083

PO IS 00004 MRM of 2 channels,ES-
328.8 > 284.8

2.895e+005

HFPO
0.99
27241.82
2.72e4



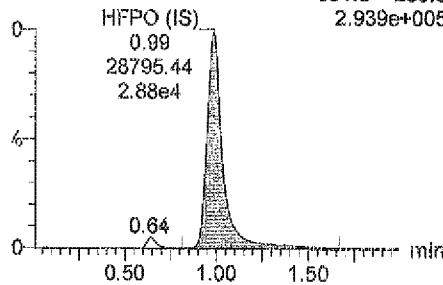
#	Name	Type	Std. Conc.	RT	Area	S/Area	Response	Primar	ppb	%Dev
1	hfpo717H23083		10.000	0.99	27241.822	28795.438	0.946	bd	10.0	-0.4

Dataset: Untitled

Last Altered: Tuesday, August 29, 2017 10:47:21 Mountain Daylight Time
Entered: Tuesday, August 29, 2017 10:47:53 Mountain Daylight Time

Sample Name: hfp0717H23083

PO IS 00004 MRM of 2 channels,ES-
331.8 > 286.8



#	Name	Type	Std. Conc.	RT	Area	(S) Area	Response	Primar...	ppb	%Dev
1	hfp0717H23083		1.000	0.99	28795.438		28795.438	bb	1.2	23.6

Reagent

HFPO-DA 00003



WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:
COMPOUND:

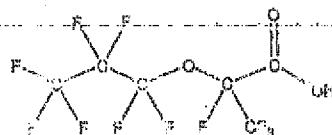
HFPDA

2,2,3,3-tetrafluoro-2-(1,1,2,2,3,3-heptafluoropropoxy)-propanoic acid

LOT NUMBER: HFPDA0213

STRUCTURE:

CAS #: 13262-13-6



MOLECULAR FORMULA: C₄H₆F₁₀O₃
CONCENTRATION: 50 ± 2.5 µg/ml
CHEMICAL PURITY: >98%
LAST TESTED: (mmddyy) 02/05/2014
EXPIRY DATE: (mmddyy) Stability studies ongoing
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 330.05
SOLVENT(S): Methanol

DOCUMENTATION DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

21 = 0.025 ppb
21 = LRL
NDL

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 02/13/2014

(mmddyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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where U is expressed as a relative standard uncertainty of the individual parameter.

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EXPIRY DATE / PERIOD OF VALIDITY:

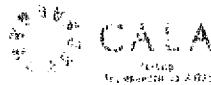
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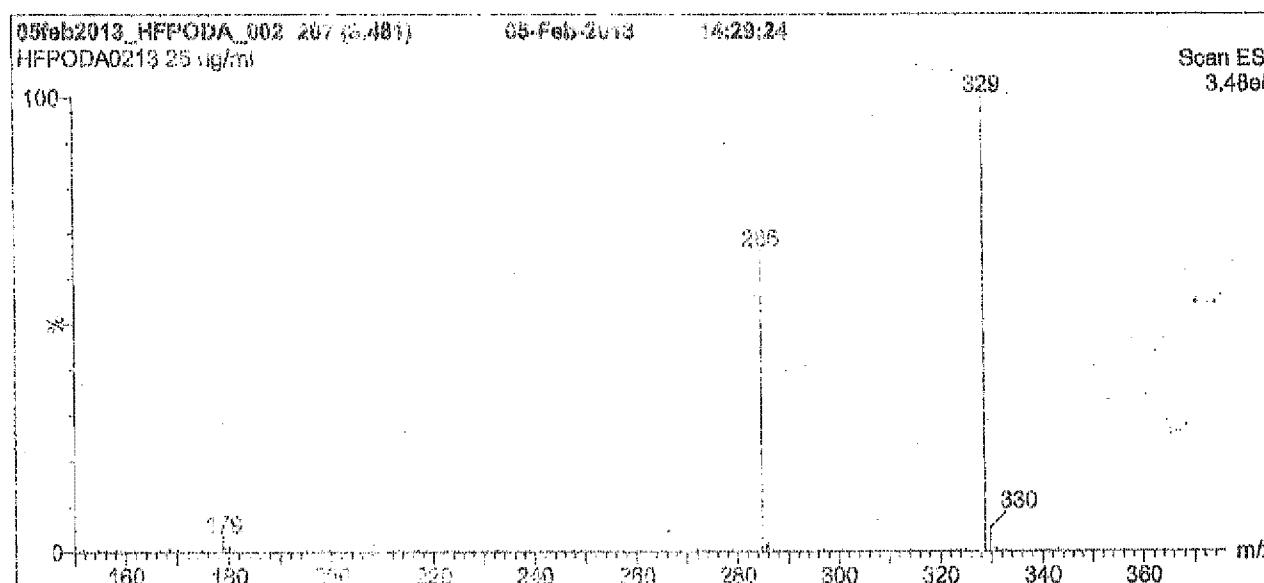
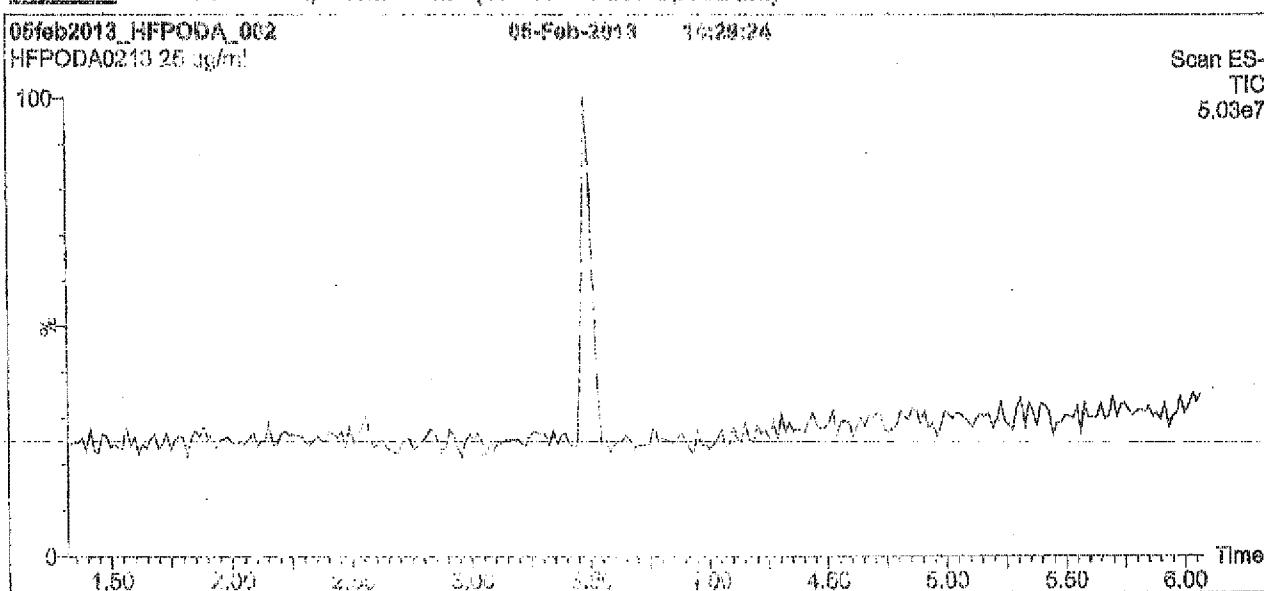
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to ISO 9001:2008 by SAI Global, ISO/IEC 17025:2008 by the Canadian Association for Laboratory Accreditation Inc. (CALA, A1226), and ISO GUIDE 34:2009 by ACCLASS (certificate number AP-159).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at iso@well-labs.com

Figure 1: HFFPO-DA; LC/MS Data (TIC and Mass spectrum)



Conditions for Figure 1:

LC: Waters Acuity UHPLC Performance LC
MS: Micromass Quattro micro API MS

Chromatographic Conditions:

Column: Kinetex PEI
2.6 μm , 4.8 x 100 mm

Mobile phase: Gradient
Start: 40% (0.020 Molar LiClO₄) / 60% H₂O
Gradient: 10 mM Li₂CO₃ buffer
Ramp to 60% organic over 6 min and hold for 1 min
before returning to initial conditions in 0.5 min.
Time: 11 min

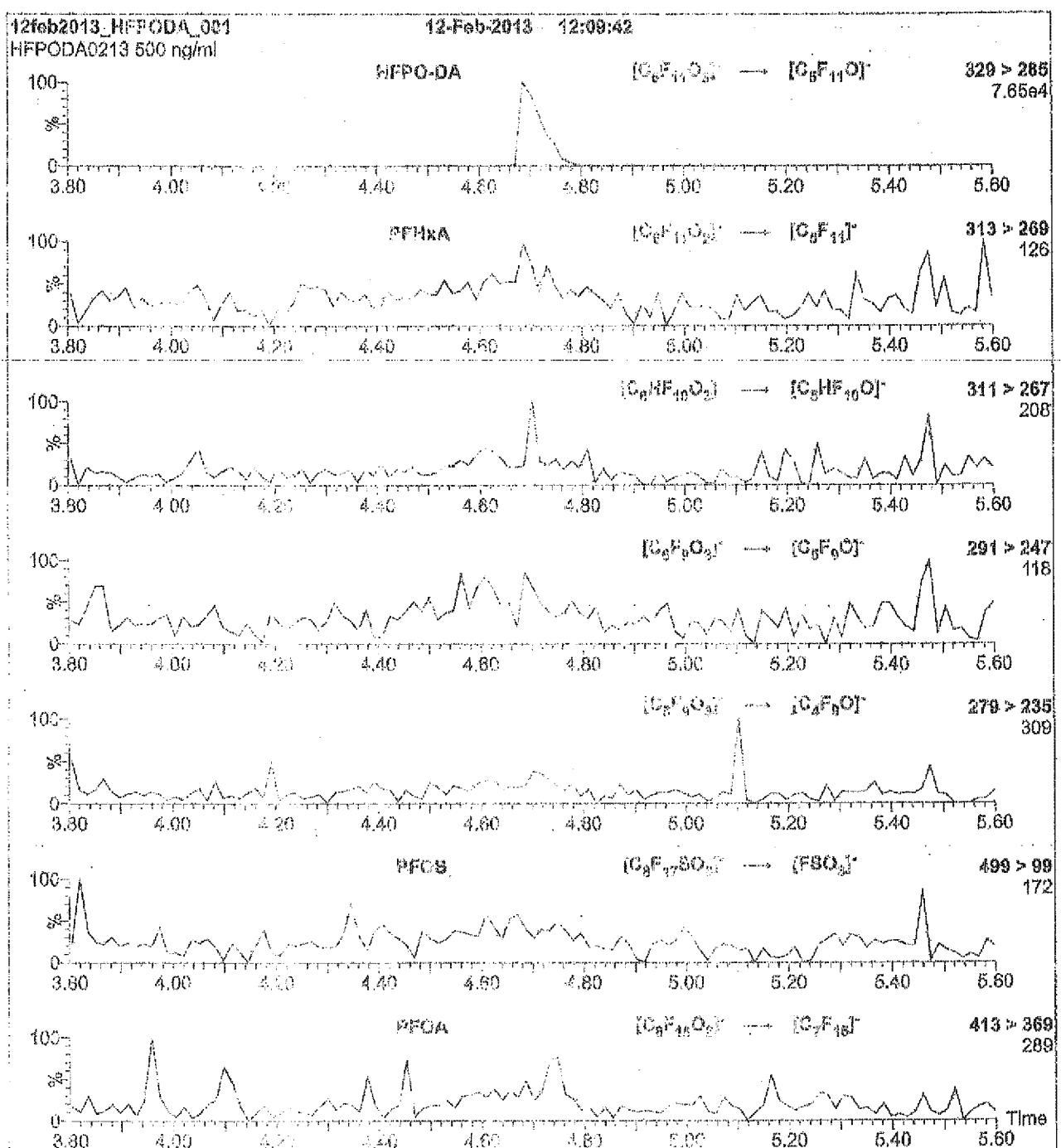
Flow: 0.01 $\mu\text{l}/\text{min}$

MS Parameters:

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 9.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: HFPO-DA LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml HFPO-DA)

ESI Parameters:

Collision Gas (mbar) = 3.87e-3

Mobile phase: Isocratic 80% (60:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Collision Energy (eV) = 5

Flow: 300 μ l/min

Reagent

HFPO-DA 00004



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

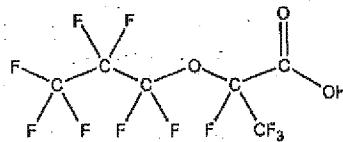
PRODUCT CODE: HFPO-DA

LOT NUMBER: HFPODA0717

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid

STRUCTURE:

CAS #: 13252-13-6



MOLECULAR FORMULA: C₆HF₁₁O₃

MOLECULAR WEIGHT: 330.05

CONCENTRATION: 50 ± 2.5 µg/ml

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 07/13/2017

EXPIRY DATE: (mm/dd/yyyy) 07/13/2020

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

Date: 07/14/2017

(mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • Info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters

x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to International Interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

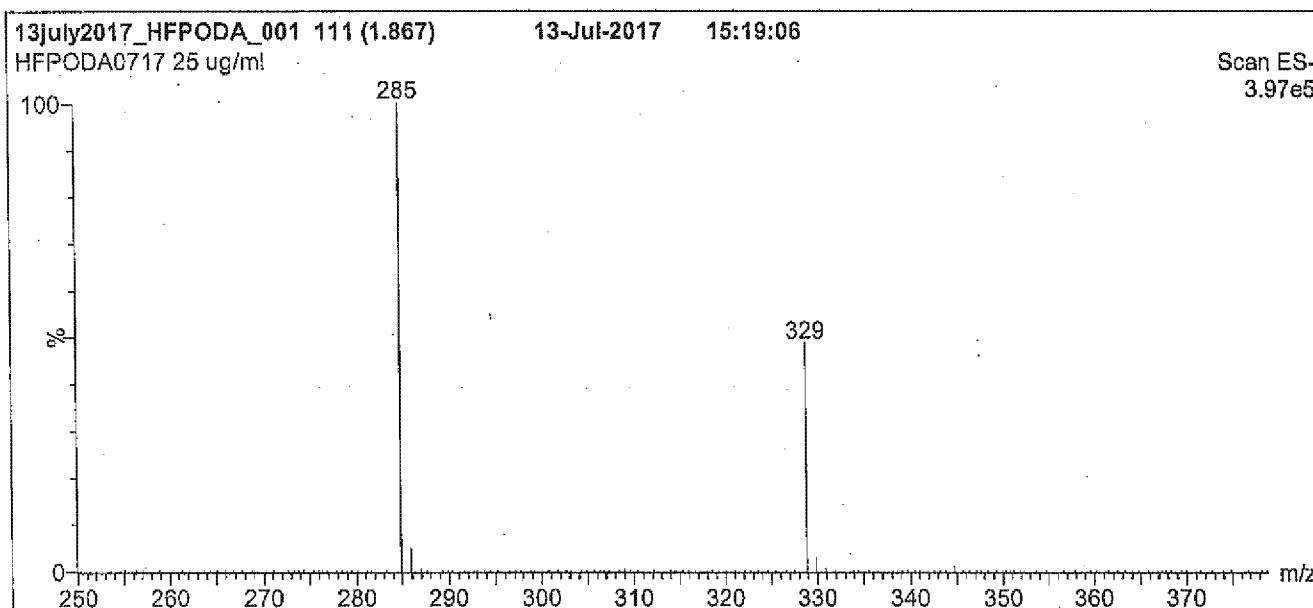
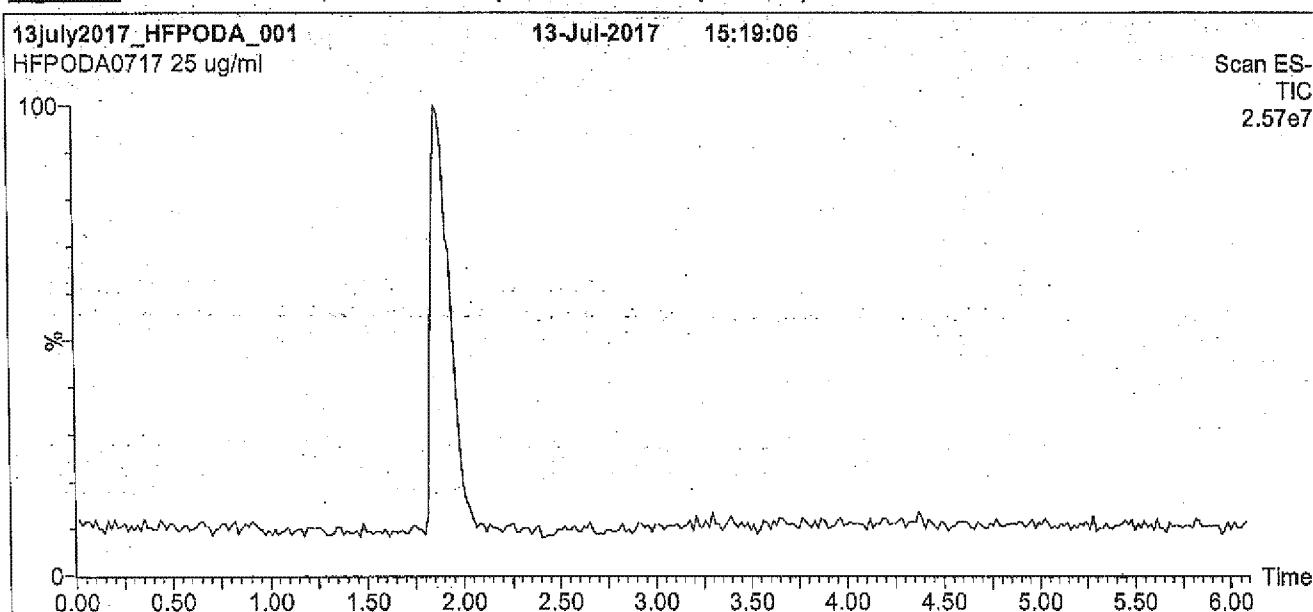
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: HFPO-DA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% MeOH / 45% H₂O with 10 mM NH₄OAc buffer
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.

Time: 10 min

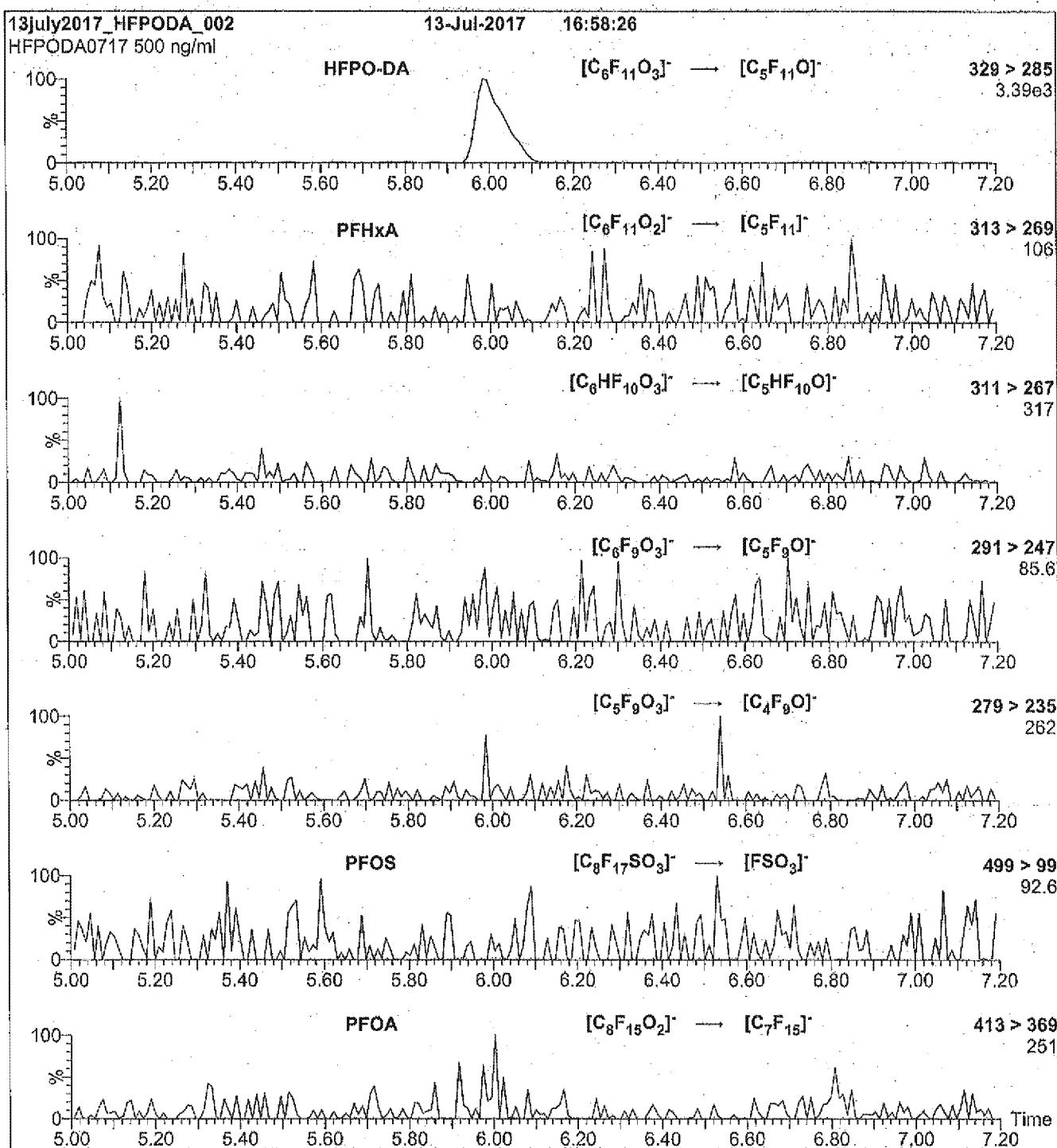
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 700

Figure 2: HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml HFPO-DA)

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 5

Mobile phase: Isocratic 80% MeOH / 20% H₂O with 10 mM NH₄OAc buffer

Flow: 300 μ l/min

8321A_HFPO_Du

HFPO-DA

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-106852-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): Synergi Hyd ID: _____

Client Sample ID	Lab Sample ID	HFPEDA #
FAY-D-FB022618	280-106852-1	68
FAY-D-6379TABOR-W1 -1-022618	280-106852-2	70
FAY-D-6379TABOR-W1 -2-022618	280-106852-3	69
	MB 280-407006/1-A	65
	LCS 280-407006/2-A	66
	LCSD 280-407006/3-A	66
	LLCS 280-407006/4-A	68
	DLCK 280-404345/13	104

HFPEDA = 13C3 HFPO-DA

QC LIMITS
50-200

Column to be used to flag recovery values

FORM II 8321A

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-106852-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: hfpo718C07042.d

Lab ID: LCS 280-407006/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
HFPO-DA	0.200	0.245	122	70-130	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: hfpo718C07043.d

Lab ID: LCSD 280-407006/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD REC	%	QC LIMITS		#
					RPD	RPD	
HFPO-DA	0.200	0.248	124	1	20	70-130	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-106852-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: hfpo718C07044.d

Lab ID: LLCS 280-407006/4-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LLCS CONCENTRATION (ug/L)	LLCS REC	QC LIMITS REC	#
HFPO-DA	0.0200	0.0271	135	70-130	*

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS DETECTION LIMIT CHECK STANDARD RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-106852-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: hfpo718B08044.d

Lab ID: DLCK 280-404345/13 Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	DLCK CONCENTRATION (ug/L)	DLCK % REC	QC LIMITS REC	#
HFPO-DA	0.250	<0.50	90	70-130	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-106852-1
SDG No.:
Lab File ID: hfpo718C07041.d Lab Sample ID: MB 280-407006/1-A
Matrix: Water Date Extracted: 03/06/2018 17:00
Instrument ID: LC_LCMS7 Date Analyzed: 03/07/2018 12:33
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-407006/2-A	hfpo718C070 42.d	03/07/2018 12:36
	LCSD 280-407006/3-A	hfpo718C070 43.d	03/07/2018 12:40
	LLCS 280-407006/4-A	hfpo718C070 44.d	03/07/2018 12:43
FAY-D-FB022618	280-106852-1	hfpo718C070 53.d	03/07/2018 13:12
FAY-D-6379TABOR-W1-1-022618	280-106852-2	hfpo718C070 54.d	03/07/2018 13:16
FAY-D-6379TABOR-W1-2-022618	280-106852-3	hfpo718C070 55.d	03/07/2018 13:19

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-106852-1

SDG No.: _____

Client Sample ID: FAY-D-FB022618 Lab Sample ID: 280-106852-1

Matrix: Water Lab File ID: hfpo718C07053.d

Analysis Method: 8321A Date Collected: 02/26/2018 07:21

Extraction Method: 3535 Date Extracted: 03/06/2018 17:00

Sample wt/vol: 277.4 (mL) Date Analyzed: 03/07/2018 13:12

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407118 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.010	*	0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	68		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07053.d
 Lims ID: 280-106852-B-1-A
 Client ID: FAY-D-FB022618
 Sample Type: Client
 Inject. Date: 07-Mar-2018 13:12:49 ALS Bottle#: 5 Worklist Smp#: 53
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-106852-B-1-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 14:50:05 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 14:49:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 507331 6.80 1898
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 507331 10.0 1898

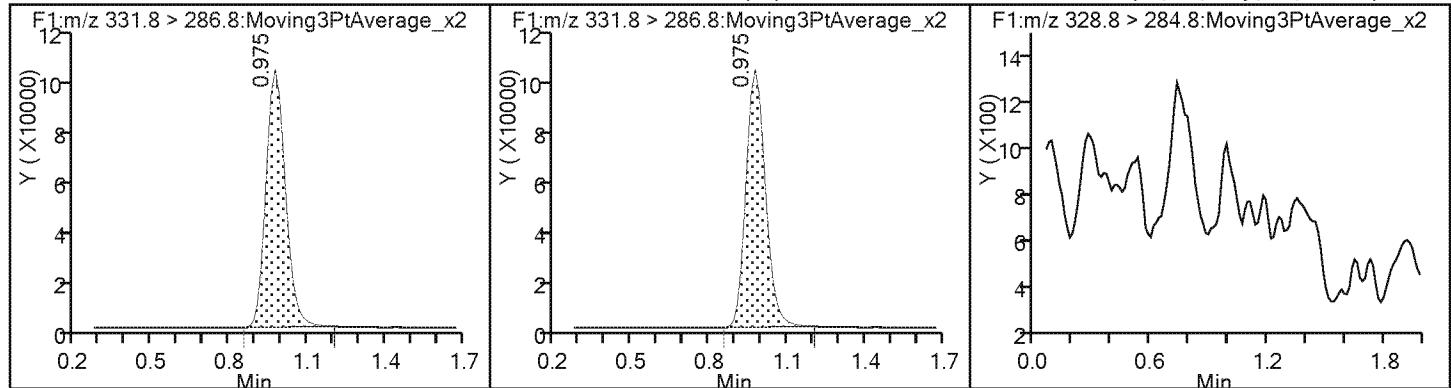
TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180307-67803.b\\hfp0718C07053.d
Injection Date: 07-Mar-2018 13:12:49 Instrument ID: LC_LCMS7
Lims ID: 280-106852-B-1-A Lab Sample ID: 280-106852-1
Client ID: FAY-D-FB022618
Operator ID: JBH ALS Bottle#: 5 Worklist Smp#: 53
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07053.d
 Lims ID: 280-106852-B-1-A
 Client ID: FAY-D-FB022618
 Sample Type: Client
 Inject. Date: 07-Mar-2018 13:12:49 ALS Bottle#: 5 Worklist Smp#: 53
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-106852-B-1-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 14:50:05 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 14:49:33

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	6.80	67.95

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-106852-1

SDG No.: _____

Client Sample ID: FAY-D-6379TABOR-W1-1-0226 Lab Sample ID: 280-106852-2
18

Matrix: Water Lab File ID: hfpo718C07054.d

Analysis Method: 8321A Date Collected: 02/26/2018 13:56

Extraction Method: 3535 Date Extracted: 03/06/2018 17:00

Sample wt/vol: 261.6 (mL) Date Analyzed: 03/07/2018 13:16

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407118 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.010	*	0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	70		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07054.d
 Lims ID: 280-106852-D-2-A
 Client ID: FAY-D-6379TABOR-W1-1-022618
 Sample Type: Client
 Inject. Date: 07-Mar-2018 13:16:03 ALS Bottle#: 6 Worklist Smp#: 54
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-106852-D-2-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 14:50:05 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

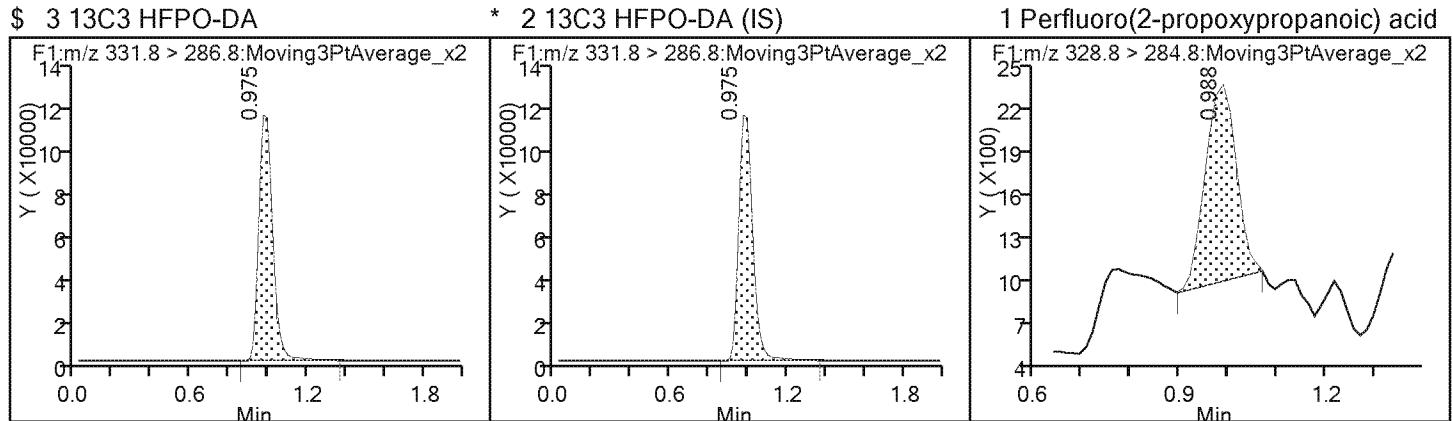
First Level Reviewer: meyera Date: 07-Mar-2018 14:49:35

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 525326 7.04 4347
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 525326 10.0 4347
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 5834 0.0704 3.6

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180307-67803.b\\hfpo718C07054.d
Injection Date: 07-Mar-2018 13:16:03 Instrument ID: LC_LCMS7
Lims ID: 280-106852-D-2-A Lab Sample ID: 280-106852-2
Client ID: FAY-D-6379TABOR-W1-1-022618
Operator ID: JBH ALS Bottle#: 6 Worklist Smp#: 54
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: HFPO Limit Group: LC - 8321A_HFPO_Du



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07054.d
 Lims ID: 280-106852-D-2-A
 Client ID: FAY-D-6379TABOR-W1-1-022618
 Sample Type: Client
 Inject. Date: 07-Mar-2018 13:16:03 ALS Bottle#: 6 Worklist Smp#: 54
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-106852-D-2-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 14:50:05 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 14:49:35

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	7.04	70.36

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-106852-1

SDG No.: _____

Client Sample ID: FAY-D-6379TABOR-W1-2-0226 Lab Sample ID: 280-106852-3
18

Matrix: Water Lab File ID: hfpo718C07055.d

Analysis Method: 8321A Date Collected: 02/26/2018 13:57

Extraction Method: 3535 Date Extracted: 03/06/2018 17:00

Sample wt/vol: 258.2 (mL) Date Analyzed: 03/07/2018 13:19

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407118 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.010	*	0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	69		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07055.d
 Lims ID: 280-106852-D-3-A
 Client ID: FAY-D-6379TABOR-W1-2-022618
 Sample Type: Client
 Inject. Date: 07-Mar-2018 13:19:18 ALS Bottle#: 7 Worklist Smp#: 55
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-106852-D-3-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 14:50:05 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 14:49:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 514483 6.89 2694
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 514483 10.0 2694

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180307-67803.b\\hfpo718C07055.d

Injection Date: 07-Mar-2018 13:19:18

Instrument ID: LC_LCMS7

Lims ID: 280-106852-D-3-A

Lab Sample ID: 280-106852-3

Client ID: FAY-D-6379TABOR-W1-2-022618

Operator ID: JBH

ALS Bottle#: 7 Worklist Smp#: 55

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

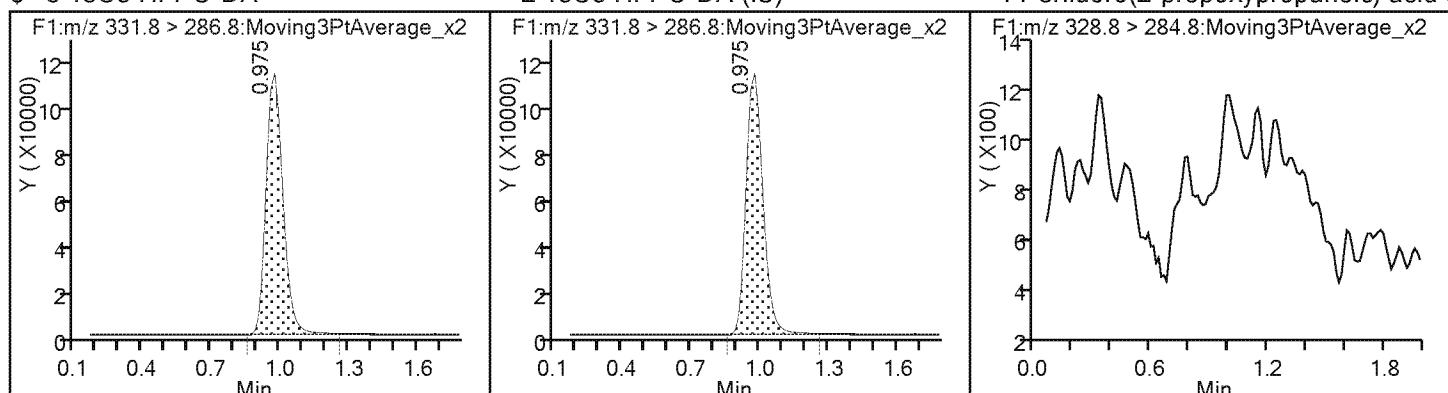
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07055.d
 Lims ID: 280-106852-D-3-A
 Client ID: FAY-D-6379TABOR-W1-2-022618
 Sample Type: Client
 Inject. Date: 07-Mar-2018 13:19:18 ALS Bottle#: 7 Worklist Smp#: 55
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-106852-D-3-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 14:50:05 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 14:49:38

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	6.89	68.91

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-106852-1 Analy Batch No.: 390728

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-390728/3	hfpo717J10026.d
Level 2	STD002 280-390728/4	hfpo717J10027.d
Level 3	STD003 280-390728/5	hfpo717J10028.d
Level 4	STD004 280-390728/6	hfpo717J10029.d
Level 5	STD005 280-390728/7	hfpo717J10030.d
Level 6	STD006 280-390728/8	hfpo717J10031.d
Level 7	STD007 280-390728/9	hfpo717J10032.d
Level 8	STD008 280-390728/10	hfpo717J10033.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8		RT WINDOW	AVG RT
Perfluoro(2-propoxypropanoic) acid	0.893	0.880	0.880	0.880	0.893	0.880	0.880	0.893		0.385 - 1.385	0.885
13C3 HFPO-DA	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.880		0.380 - 1.380	0.880

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

Analy Batch No.: 390728

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-390728/3	hfpo717J10026.d
Level 2	STD002 280-390728/4	hfpo717J10027.d
Level 3	STD003 280-390728/5	hfpo717J10028.d
Level 4	STD004 280-390728/6	hfpo717J10029.d
Level 5	STD005 280-390728/7	hfpo717J10030.d
Level 6	STD006 280-390728/8	hfpo717J10031.d
Level 7	STD007 280-390728/9	hfpo717J10032.d
Level 8	STD008 280-390728/10	hfpo717J10033.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4		B	M1	M2								
13C3 HFPO-DA	73075 74460	74523 73194	75043 72919	71803 70142	Ave		73144.6750				2.2	30.0				

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-106852-1 Analy Batch No.: 390728

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5		B	M1	M2								
Perfluoro(2-propoxypropanoic) acid	1.6980 1.0102	1.7128 0.9824	1.1896 1.0419	1.1637	1.0154	Lin1	0.2185	1.0121							0.9980		0.9900

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-106852-1 Analy Batch No.: 390728

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-390728/3	hfpo717J10026.d
Level 2	STD002 280-390728/4	hfpo717J10027.d
Level 3	STD003 280-390728/5	hfpo717J10028.d
Level 4	STD004 280-390728/6	hfpo717J10029.d
Level 5	STD005 280-390728/7	hfpo717J10030.d
Level 6	STD006 280-390728/8	hfpo717J10031.d
Level 7	STD007 280-390728/9	hfpo717J10032.d
Level 8	STD008 280-390728/10	hfpo717J10033.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
13C3 HFPO-DA	Ave	730749 731935	745227 729188	750427 701420	718028	744600	10.0 10.0	10.0 10.0	10.0 10.0	10.0 10.0	10.0

Curve Type Legend:

Ave = Average

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-106852-1 Analy Batch No.: 390728

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-390728/3	hfpo717J10026.d
Level 2	STD002 280-390728/4	hfpo717J10027.d
Level 3	STD003 280-390728/5	hfpo717J10028.d
Level 4	STD004 280-390728/6	hfpo717J10029.d
Level 5	STD005 280-390728/7	hfpo717J10030.d
Level 6	STD006 280-390728/8	hfpo717J10031.d
Level 7	STD007 280-390728/9	hfpo717J10032.d
Level 8	STD008 280-390728/10	hfpo717J10033.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Perfluoro(2-propoxypropanoic) acid	13CP ODA	Lin1	31020 739399	63823 1790812	89272 3654104	167109	378047	0.250 10.0	0.500 25.0	1.00 50.0	2.00	5.00

Curve Type Legend:

Lin1 = Linear 1/conc ISTD

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10026.d
 Lims ID: std001
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 10-Oct-2017 09:35:28 ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L1
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:45 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
331.8 > 286.8 0.880 0.880 0.0 1.000 730749 10.0 397

* 2 13C3 HFPO-DA (IS)
331.8 > 286.8 0.880 0.880 0.0 1.000 730749 10.0 397

1 Perfluoro(2-propoxypropanoic) acid M
328.8 > 284.8 0.893 0.885 0.008 1.000 31020 0.2036 14.1 M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-1_00031 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10026.d

Injection Date: 10-Oct-2017 09:35:28 Instrument ID: LC_LCMS7

Lims ID: std001

Client ID:

Operator ID: JBH ALS Bottle#: 2 Worklist Smp#: 3

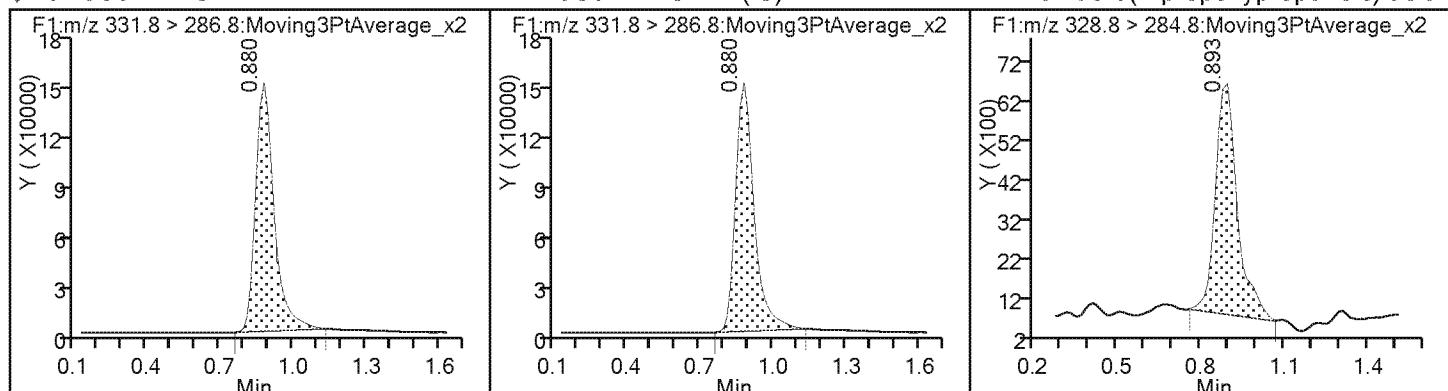
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (M)



TestAmerica Denver

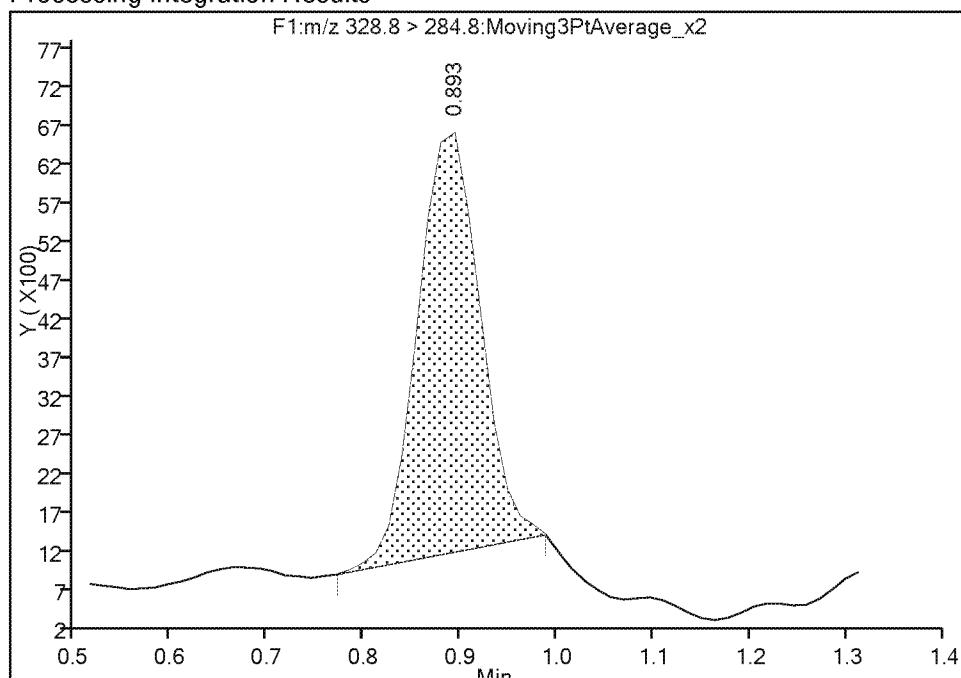
Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfpo717J10026.d
 Injection Date: 10-Oct-2017 09:35:28 Instrument ID: LC_LCMS7
 Lims ID: std001
 Client ID:
 Operator ID: JBH ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Method: HFPO Limit Group: LC - 8321A_HFPO_Du
 Column: Detector F1:MRM

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

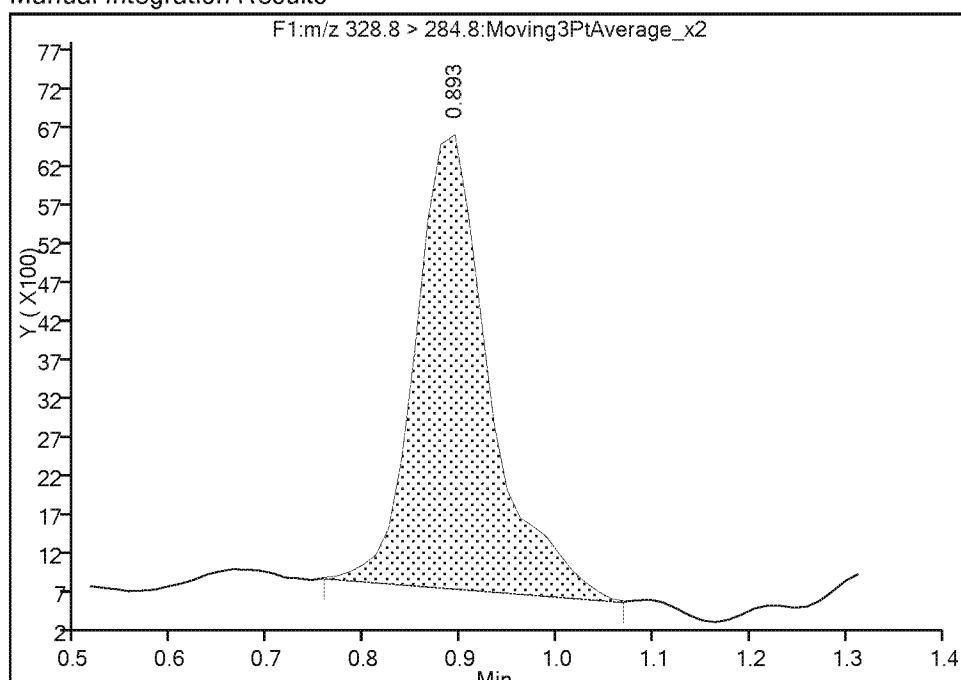
RT: 0.89
 Area: 24407
 Amount: 0.162386
 Amount Units: ug/l

Processing Integration Results



RT: 0.89
 Area: 31020
 Amount: 0.203553
 Amount Units: ug/l

Manual Integration Results



Reviewer: meyera, 10-Oct-2017 11:50:40

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10027.d
 Lims ID: std002
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 10-Oct-2017 09:38:42 ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L2
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:46 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM

Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 0.880 0.880 0.0 745227 10.0 452

\$ 3 13C3 HFPO-DA

331.8 > 286.8 0.880 0.880 0.0 1.000 745227 10.2 452

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 0.880 0.885 -0.005 1.000 63823 0.6303 36.5

Reagents:

HFPO_CAL-2_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10027.d

Injection Date: 10-Oct-2017 09:38:42 Instrument ID: LC_LCMS7

Lims ID: std002

Client ID:

Operator ID: JBH ALS Bottle#: 3 Worklist Smp#: 4

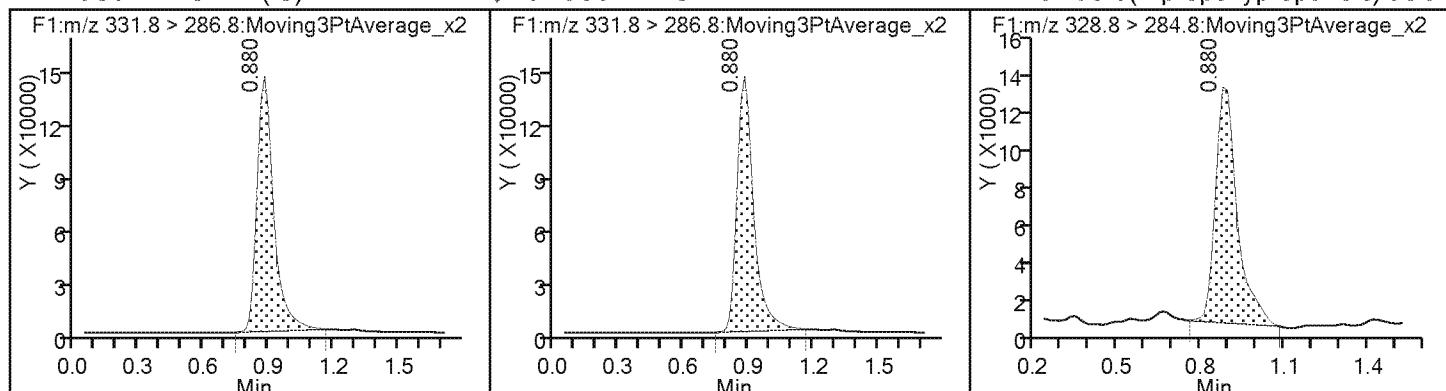
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10028.d
 Lims ID: std003
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 10-Oct-2017 09:41:56 ALS Bottle#: 4 Worklist Smp#: 5
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L3
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:47 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM

Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.880 0.880 0.0 1.000 750427 10.3 417
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.880 0.880 0.0 1.000 750427 10.0 417
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.880 0.885 -0.005 1.000 89272 0.9595 50.3

Reagents:

HFPO_CAL-3_00031 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10028.d

Injection Date: 10-Oct-2017 09:41:56 Instrument ID: LC_LCMS7

Lims ID: std003

Client ID:

Operator ID: JBH ALS Bottle#: 4 Worklist Smp#: 5

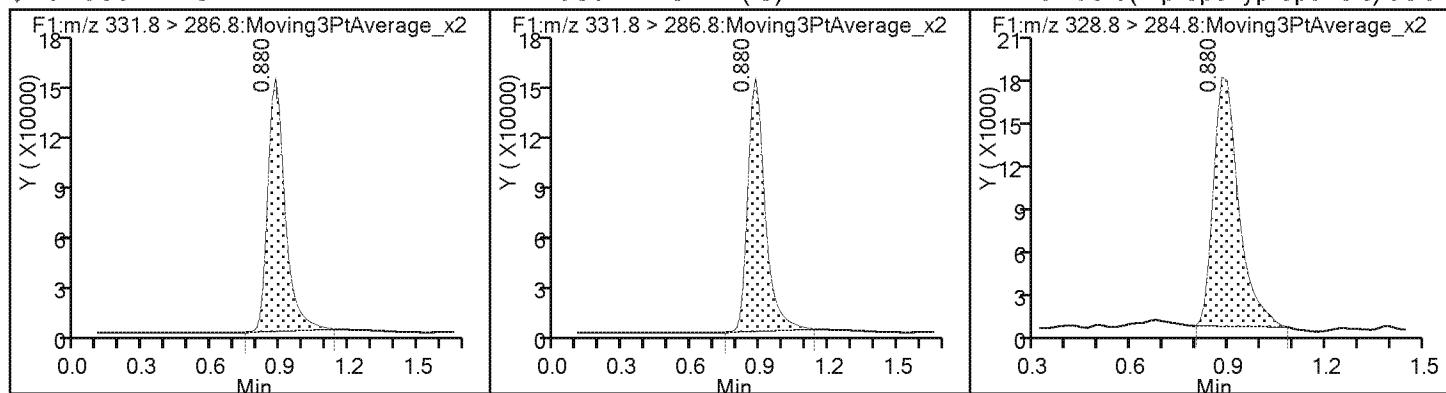
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10029.d
 Lims ID: std004
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 10-Oct-2017 09:45:11 ALS Bottle#: 5 Worklist Smp#: 6
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L4
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:47 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM

Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 0.880 0.880 0.0 718028 10.0 438

\$ 3 13C3 HFPO-DA

331.8 > 286.8 0.880 0.880 0.0 1.000 718028 9.82 438

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 0.880 0.885 -0.005 1.000 167109 2.08 143

Reagents:

HFPO_CAL-4_00031 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10029.d

Injection Date: 10-Oct-2017 09:45:11 Instrument ID: LC_LCMS7

Lims ID: std004

Client ID:

Operator ID: JBH ALS Bottle#: 5 Worklist Smp#: 6

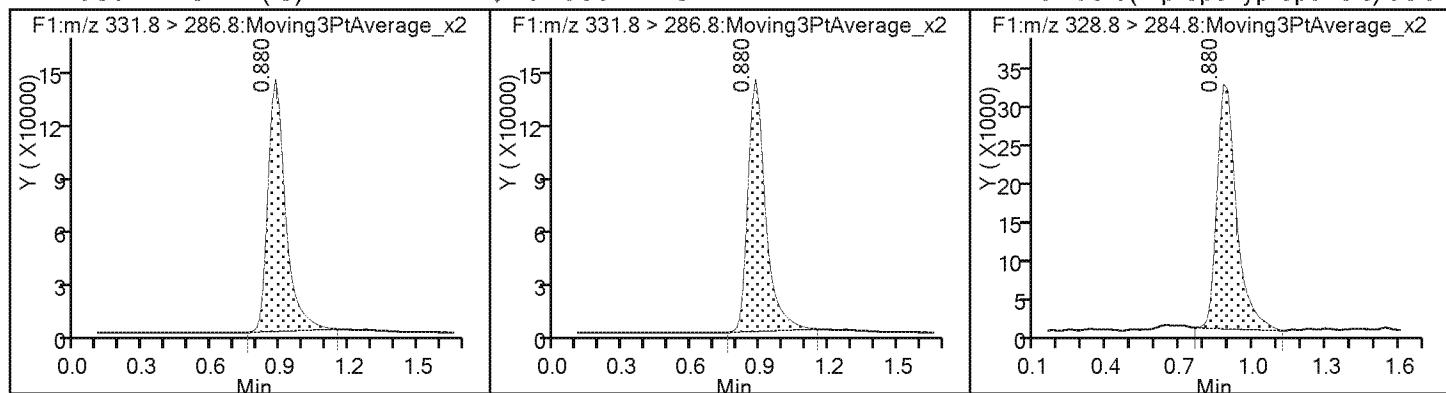
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10030.d
 Lims ID: std005
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 10-Oct-2017 09:48:25 ALS Bottle#: 6 Worklist Smp#: 7
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L5
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:48 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM

Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA

331.8 > 286.8 0.880 0.880 0.0 1.000 744600 10.2 433

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 0.880 0.880 0.0 744600 10.0 433

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 0.893 0.885 0.008 1.000 378047 4.80 223

Reagents:

HFPO_CAL-5_00070 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfpo717J10030.d

Injection Date: 10-Oct-2017 09:48:25 Instrument ID: LC_LCMS7

Lims ID: std005

Client ID:

Operator ID: JBH ALS Bottle#: 6 Worklist Smp#: 7

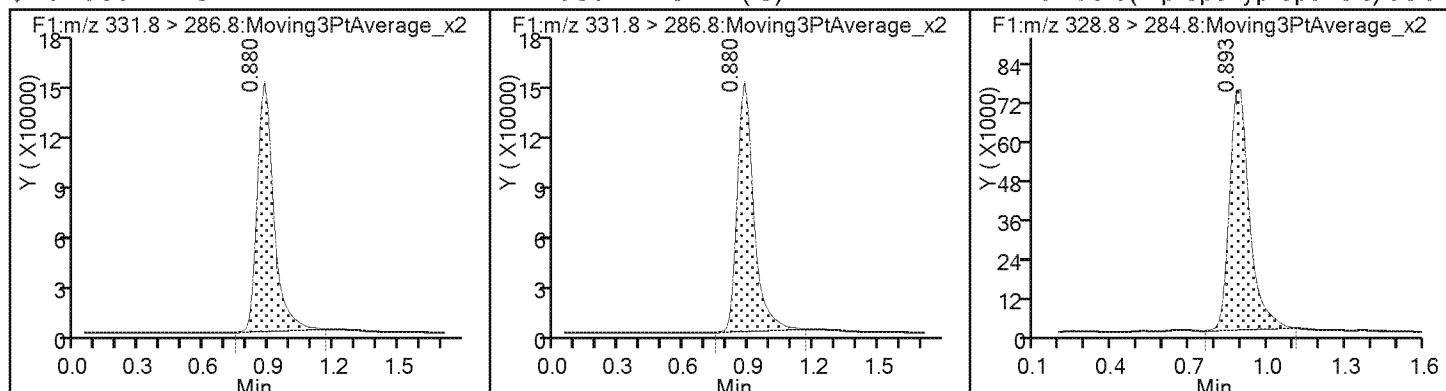
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10031.d
 Lims ID: std006
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 10-Oct-2017 09:51:39 ALS Bottle#: 7 Worklist Smp#: 8
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L6
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:49 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM

Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:51:00

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 0.880 0.880 0.0 731935 10.0 379

\$ 3 13C3 HFPO-DA

331.8 > 286.8 0.880 0.880 0.0 1.000 731935 10.0 379

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 0.880 0.885 -0.005 1.000 739399 9.77 298

Reagents:

HFPO_CAL-6_00070 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10031.d

Injection Date: 10-Oct-2017 09:51:39

Instrument ID: LC_LCMS7

Lims ID: std006

Client ID:

Operator ID: JBH

ALS Bottle#: 7 Worklist Smp#: 8

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

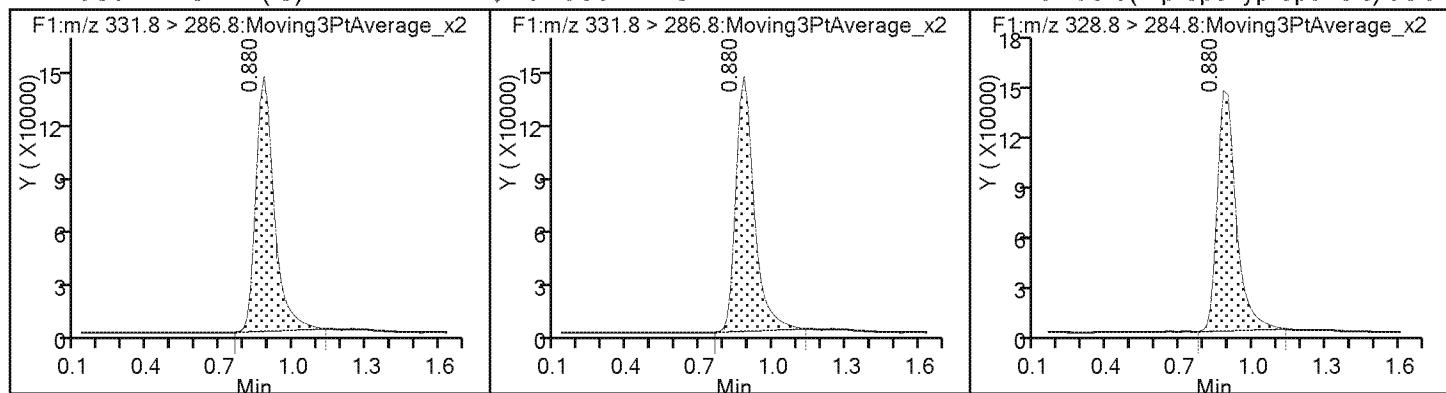
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10032.d
 Lims ID: std007
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 10-Oct-2017 09:54:53 ALS Bottle#: 8 Worklist Smp#: 9
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L7
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:50 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:51:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.880 0.880 0.0 1.000 729188 9.97 404
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.880 0.880 0.0 1.000 729188 10.0 404
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.880 0.885 -0.005 1.000 1790812 24.0 386

Reagents:

HFPO_CAL-7_00031 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10032.d

Injection Date: 10-Oct-2017 09:54:53 Instrument ID: LC_LCMS7

Lims ID: std007

Client ID:

Operator ID: JBH

ALS Bottle#: 8 Worklist Smp#: 9

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

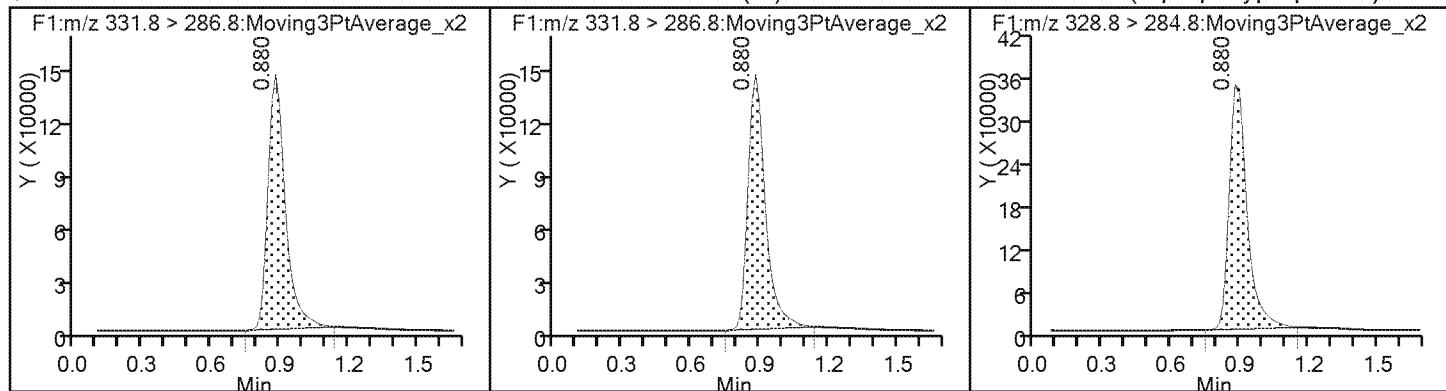
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d
 Lims ID: std008
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 10-Oct-2017 09:58:07 ALS Bottle#: 9 Worklist Smp#: 10
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L8
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:51 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM

Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:51:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 0.880 0.880 0.0 701420 10.0 373

\$ 3 13C3 HFPO-DA

331.8 > 286.8 0.880 0.880 0.0 1.000 701420 9.59 373

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 0.893 0.885 0.008 1.000 3654104 51.3 421

Reagents:

HFPO_CAL-8_00031 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10033.d

Injection Date: 10-Oct-2017 09:58:07 Instrument ID: LC_LCMS7

Lims ID: std008

Client ID:

Operator ID: JBH

ALS Bottle#: 9 Worklist Smp#: 10

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

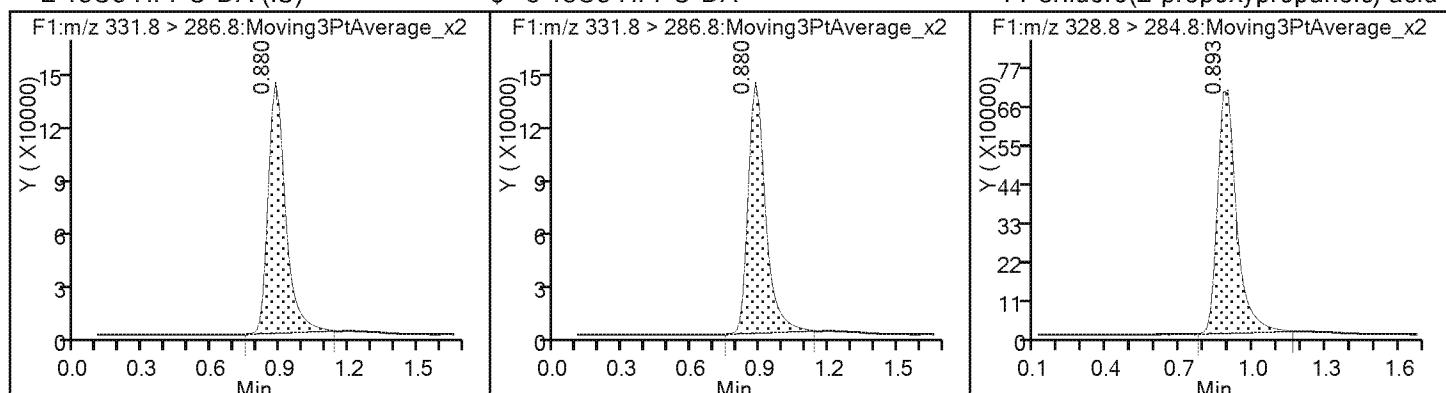
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-106852-1 Analy Batch No.: 404345
SDG No.: _____
Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N
Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	RT WINDOW	AVG RT
HFPO-DA	1.056	1.056	1.056	1.056	1.056	1.056	1.056	1.056	1.056	0.556 - 1.556	1.056
13C3 HFPO-DA	1.042	1.042	1.042	1.042	1.042	1.042	1.042	1.056	1.056	0.545 - 1.545	1.045

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

Analy Batch No.: 404345

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4		B	M1	M2								
13C3 HFPO-DA	75771 75244 71284	75964 75940	72010 75039	77000 73687	Ave		74659.8778				2.6		30.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-106852-1 Analy Batch No.: 404345

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5		B	M1	M2								
HFPO-DA	1.1630 1.1128	1.1250 1.0911	1.0756 1.0665	1.0527 1.0507	1.1211	Lin1	0.0361	1.0638							1.0000		0.9900

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

Analy Batch No.: 404345

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
13C3 HFPO-DA	Ave	757714 759397	759642 750388	720099 736869	769995 712841	752444	10.0 10.0	10.0 10.0	10.0 10.0	10.0 10.0	10.0

Curve Type Legend:

Ave = Average

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-106852-1 Analy Batch No.: 404345

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
HFPO-DA	13CP ODA	Lin1	22031 845082	42730 2046873	77455 3929397	162117 7489478	421775	0.250 10.0	0.500 25.0	1.00 50.0	2.00 100	5.00

Curve Type Legend:

Lin1 = Linear 1/conc ISTD

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08034.d
 Lims ID: std001
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 08-Feb-2018 13:05:38 ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L1
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:13 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 757714 10.0 1562

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 757714 10.1 1562
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 22031 0.2394 4.4 M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-1_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08034.d

Injection Date: 08-Feb-2018 13:05:38

Instrument ID: LC_LCMS7

Lims ID: std001

Client ID:

Operator ID: JBH

ALS Bottle#: 2 Worklist Smp#: 3

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

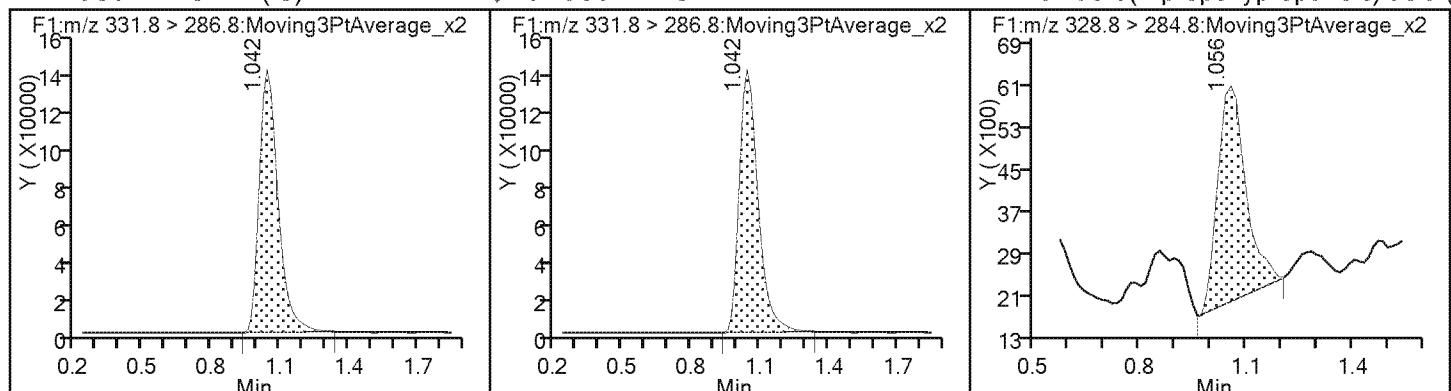
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid (M)



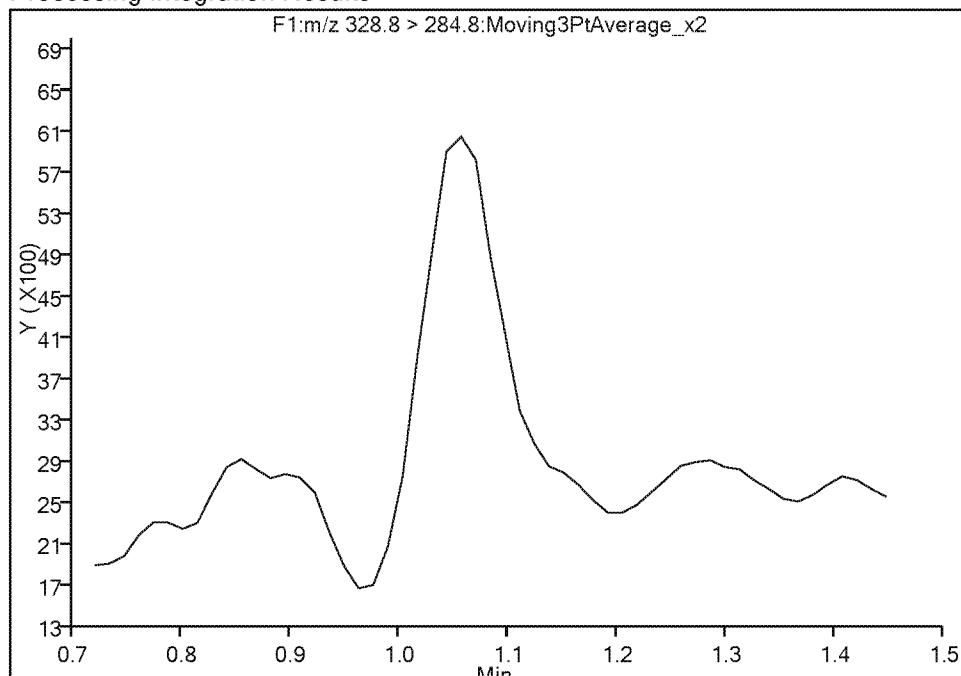
TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08034.d
 Injection Date: 08-Feb-2018 13:05:38 Instrument ID: LC_LCMS7
 Lims ID: std001
 Client ID:
 Operator ID: JBH ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Method: HFPO Limit Group: LC - 8321A_HFPO_Du
 Column: Detector F1:MRM

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6
 Signal: 1

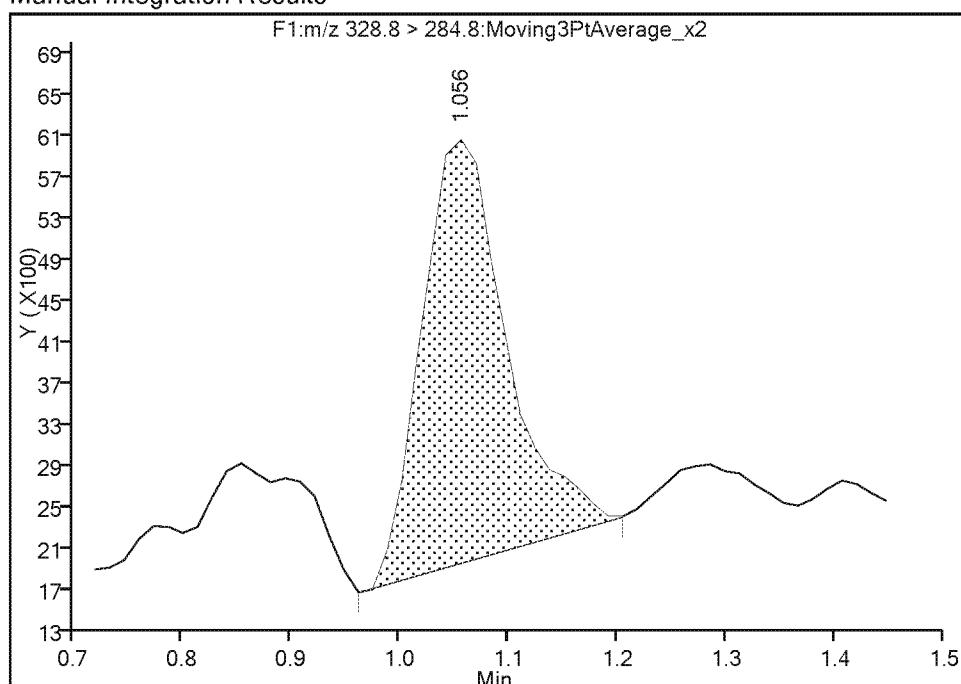
Not Detected
 Expected RT: 1.06

Processing Integration Results



RT: 1.06
 Area: 22031
 Amount: 0.239356
 Amount Units: ug/l

Manual Integration Results



Reviewer: meyera, 08-Feb-2018 15:19:01

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08035.d
 Lims ID: std002
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 08-Feb-2018 13:08:52 ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L2
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:14 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:16

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759642 10.2 1267
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759642 10.0 1267
 1 Perfluoro(2-propoxypropanoic) acid M
 328.8 > 284.8 1.056 1.056 0.0 1.000 42730 0.4948 6.5 M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-2_00033 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08035.d

Injection Date: 08-Feb-2018 13:08:52

Instrument ID: LC_LCMS7

Lims ID: std002

Client ID:

Operator ID: JBH

ALS Bottle#: 3 Worklist Smp#: 4

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

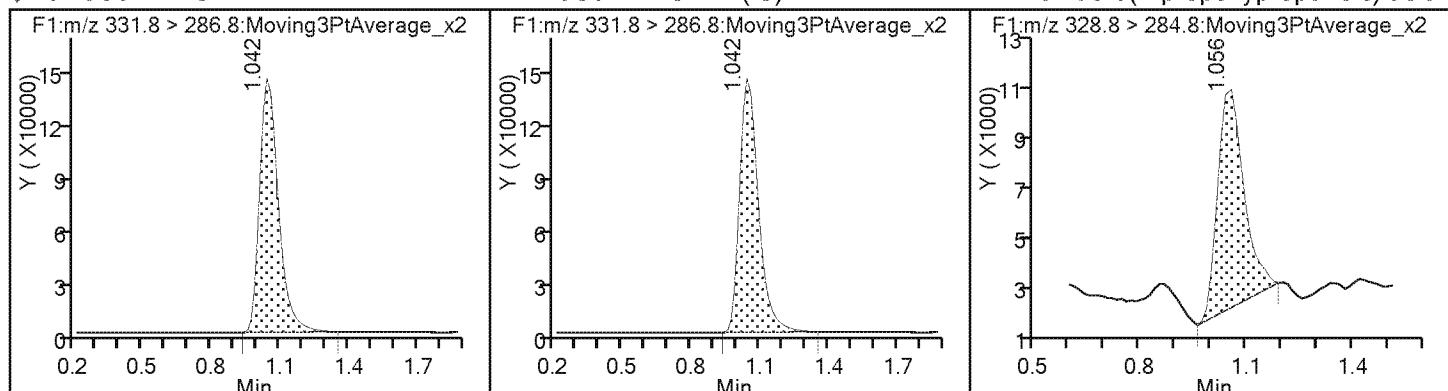
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (M)



TestAmerica Denver

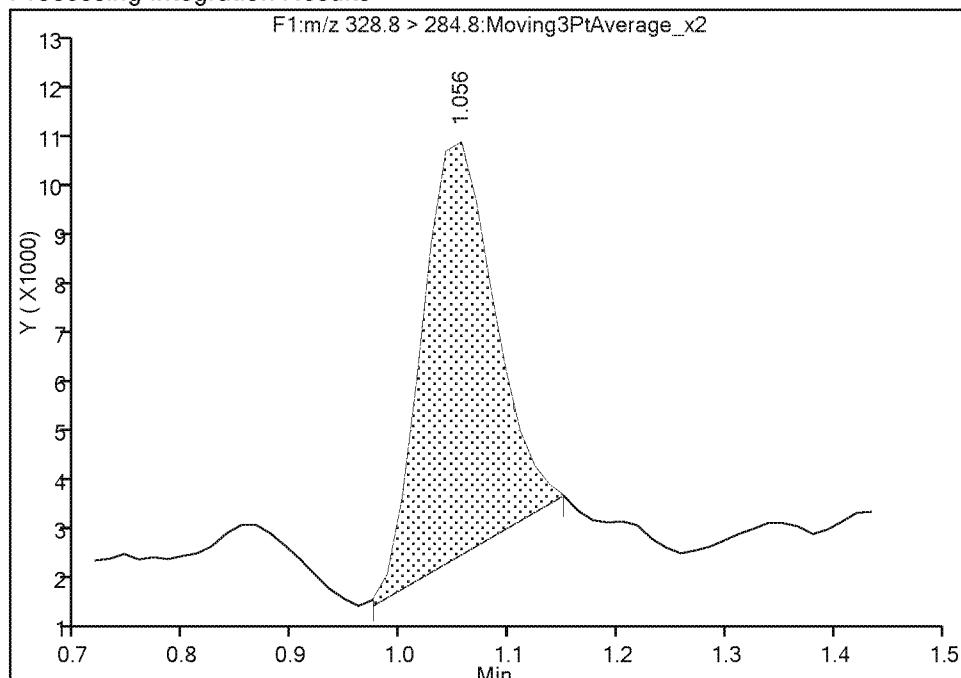
Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08035.d
 Injection Date: 08-Feb-2018 13:08:52 Instrument ID: LC_LCMS7
 Lims ID: std002
 Client ID:
 Operator ID: JBH ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Method: HFPO Limit Group: LC - 8321A_HFPO_Du
 Column: Detector F1:MRM

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

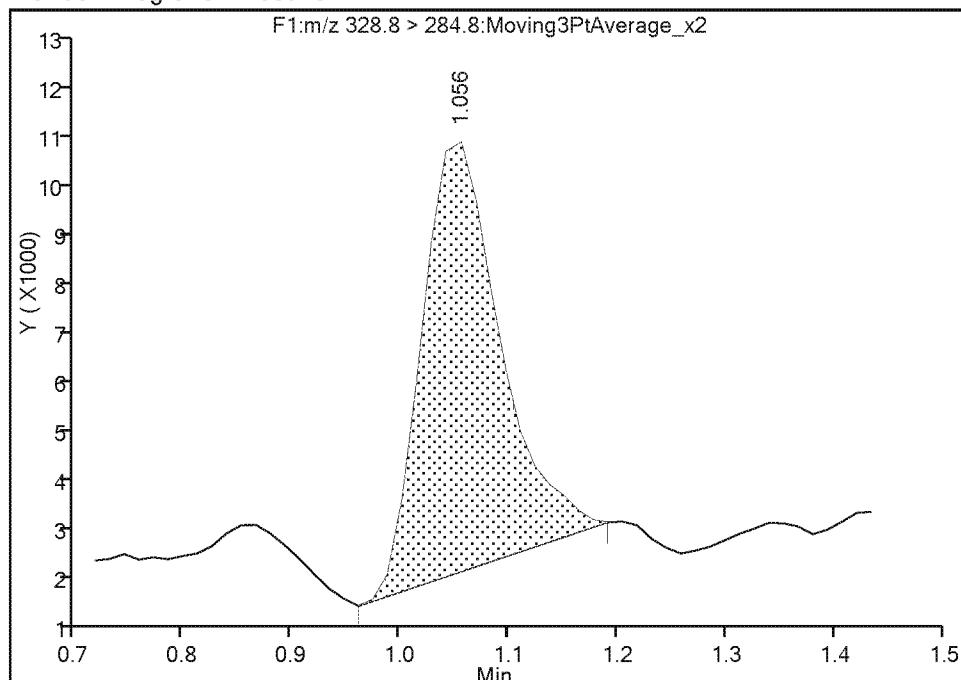
Processing Integration Results

RT: 1.06
 Area: 38092
 Amount: 0.452274
 Amount Units: ug/l



Manual Integration Results

RT: 1.06
 Area: 42730
 Amount: 0.494804
 Amount Units: ug/l



Reviewer: meyera, 08-Feb-2018 15:19:12

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08036.d
 Lims ID: std003
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 08-Feb-2018 13:12:06 ALS Bottle#: 4 Worklist Smp#: 5
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L3
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:14 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d
 Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 1.042 1.045 -0.003 720099 10.0 956

\$ 3 13C3 HFPO-DA

331.8 > 286.8 1.042 1.045 -0.003 1.000 720099 9.65 956

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 1.056 1.056 0.0 1.000 77455 0.9771 10.6

Reagents:

HFPO_CAL-3_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08036.d

Injection Date: 08-Feb-2018 13:12:06

Instrument ID: LC_LCMS7

Lims ID: std003

Client ID:

Operator ID: JBH

ALS Bottle#: 4 Worklist Smp#: 5

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

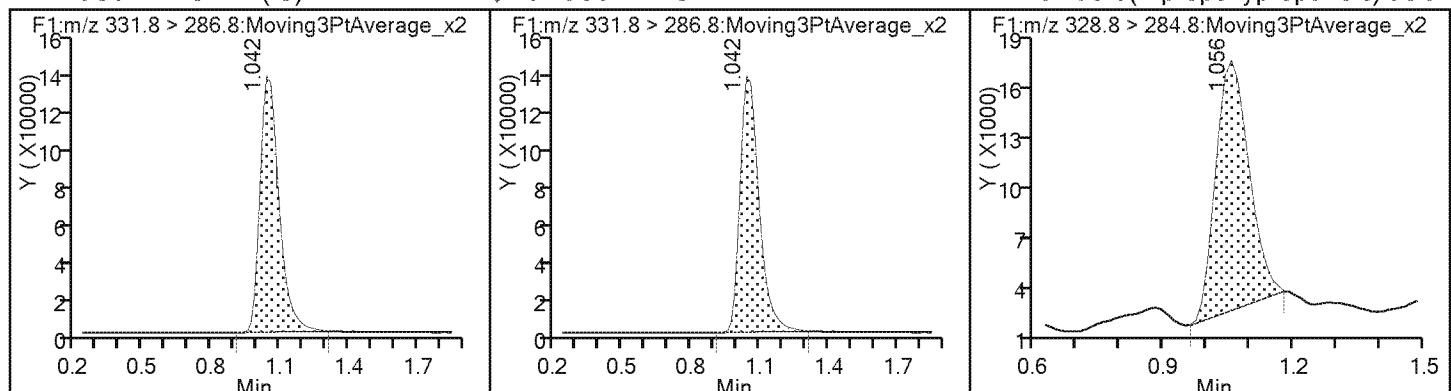
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08037.d
 Lims ID: std004
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 08-Feb-2018 13:15:21 ALS Bottle#: 5 Worklist Smp#: 6
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L4
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:15 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 769995 10.3 1154
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 1.000 769995 10.0 1154
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 162117 1.95 26.1

Reagents:

HFPO_CAL-4_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08037.d

Injection Date: 08-Feb-2018 13:15:21

Instrument ID: LC_LCMS7

Lims ID: std004

Client ID:

Operator ID: JBH

ALS Bottle#: 5 Worklist Smp#: 6

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

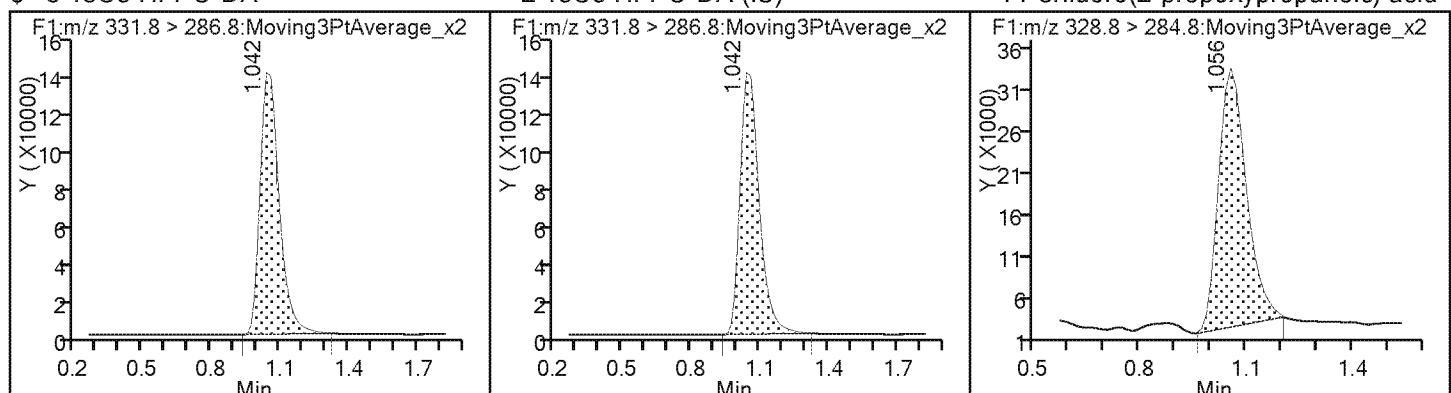
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08038.d
 Lims ID: std005
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 08-Feb-2018 13:18:35 ALS Bottle#: 6 Worklist Smp#: 7
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L5
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:15 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 1.042 1.045 -0.003 752444 10.0 1072

\$ 3 13C3 HFPO-DA

331.8 > 286.8 1.042 1.045 -0.003 1.000 752444 10.1 1072

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 1.056 1.056 0.0 1.000 421775 5.24 66.0

Reagents:

HFPO_CAL-5_00080 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08038.d

Injection Date: 08-Feb-2018 13:18:35

Instrument ID: LC_LCMS7

Lims ID: std005

Client ID:

Operator ID: JBH

ALS Bottle#: 6 Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

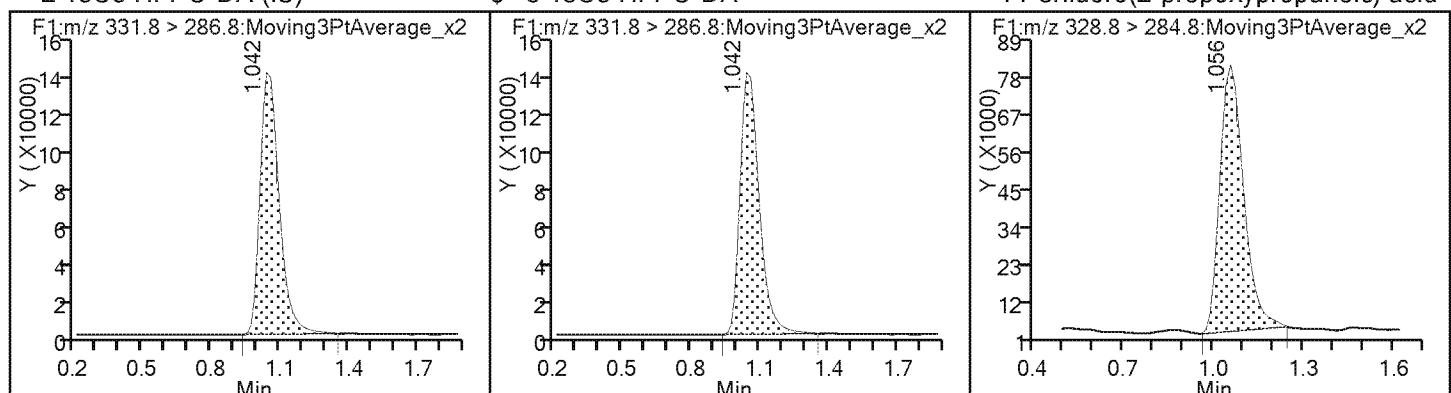
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08039.d
 Lims ID: std006
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 08-Feb-2018 13:21:49 ALS Bottle#: 7 Worklist Smp#: 8
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L6
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:16 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759397 10.2 1193
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759397 10.0 1193
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 845082 10.4 146

Reagents:

HFPO_CAL-6_00080 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08039.d

Injection Date: 08-Feb-2018 13:21:49

Instrument ID: LC_LCMS7

Lims ID: std006

Client ID:

Operator ID: JBH

ALS Bottle#: 7 Worklist Smp#: 8

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

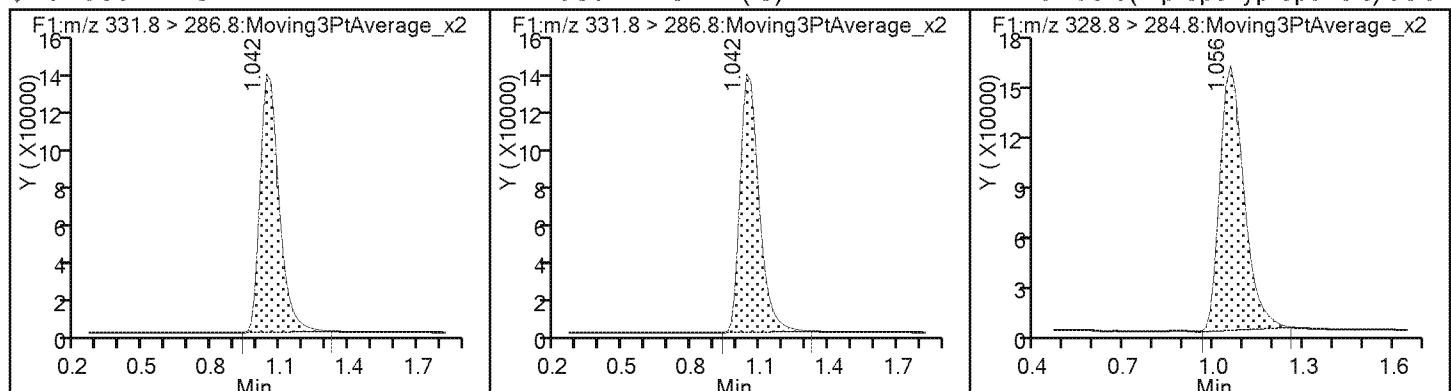
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08040.d
 Lims ID: std007
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 08-Feb-2018 13:25:03 ALS Bottle#: 8 Worklist Smp#: 9
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L7
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:16 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 750388 10.0 1247
 \$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 750388 10.1 1247
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 2046873 25.6 246

Reagents:

HFPO_CAL-7_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08040.d

Injection Date: 08-Feb-2018 13:25:03

Instrument ID: LC_LCMS7

Lims ID: std007

Client ID:

Operator ID: JBH

ALS Bottle#: 8 Worklist Smp#: 9

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

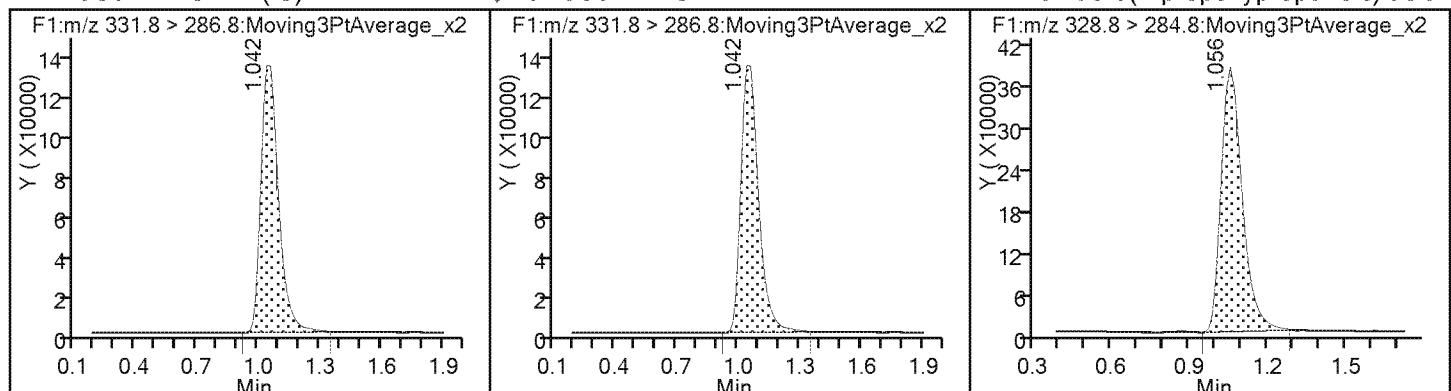
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08041.d
 Lims ID: std008
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 08-Feb-2018 13:28:18 ALS Bottle#: 9 Worklist Smp#: 10
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L8
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.056 1.045 0.011 1.000 736869 9.87 1055
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.056 1.045 0.011 1.000 736869 10.0 1055
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 3929397 50.1 416

Reagents:

HFPO_CAL-8_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08041.d

Injection Date: 08-Feb-2018 13:28:18

Instrument ID: LC_LCMS7

Lims ID: std008

Client ID:

Operator ID: JBH

ALS Bottle#: 9 Worklist Smp#: 10

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

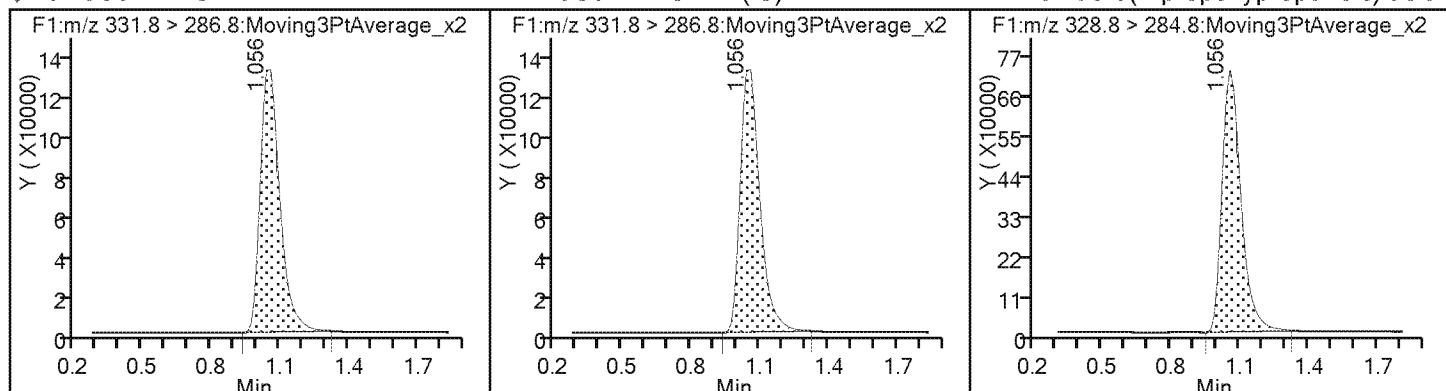
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d
 Lims ID: std009
 Client ID:
 Sample Type: IC Calib Level: 9
 Inject. Date: 08-Feb-2018 13:31:32 ALS Bottle#: 10 Worklist Smp#: 11
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L9
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 1.056 1.045 0.011 712841 10.0 1141

\$ 3 13C3 HFPO-DA

331.8 > 286.8 1.056 1.045 0.011 1.000 712841 9.55 1141

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 1.056 1.056 0.0 1.000 7489478 98.7 561

Reagents:

HFPO_CAL-9_00001 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08042.d

Injection Date: 08-Feb-2018 13:31:32

Instrument ID: LC_LCMS7

Lims ID: std009

Client ID:

Operator ID: JBH

ALS Bottle#: 10 Worklist Smp#: 11

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

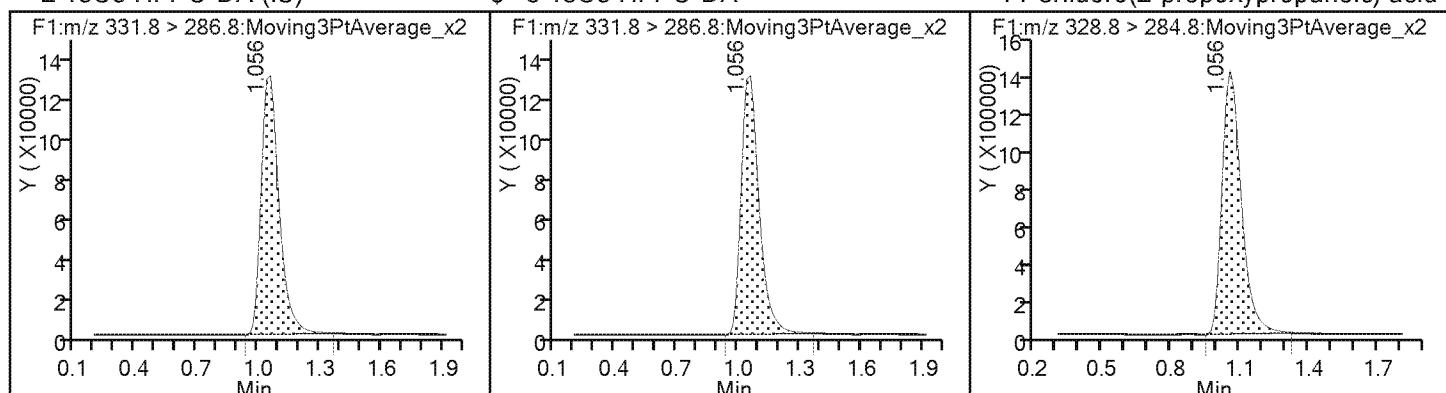
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Lab Sample ID: ICV 280-390728/13

Calibration Date: 10/10/2017 10:07

Instrument ID: LC_LCMS7

Calib Start Date: 10/10/2017 09:35

GC Column: Synergi Hydro ID:

Calib End Date: 10/10/2017 09:58

Lab File ID: hfpo717J10036.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro(2-propoxypropanoic acid	Lin1		1.154		2.07	2.00	3.3	20.0
13C3 HFPO-DA	Ave	73145	72923		9.97	10.0	-0.3	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10036.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 10-Oct-2017 10:07:48 ALS Bottle#: 10 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist:
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:53 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM

Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:51:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA

331.8 > 286.8 0.880 0.880 0.0 1.000 729225 9.97 396

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 0.880 0.880 0.0 729225 10.0 396

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 0.893 0.885 0.008 1.000 168368 2.07 111

Reagents:

HFPO_ICV_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10036.d

Injection Date: 10-Oct-2017 10:07:48 Instrument ID: LC_LCMS7

Lims ID: ICV

Client ID:

Operator ID: JBH

ALS Bottle#: 10 Worklist Smp#: 13

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

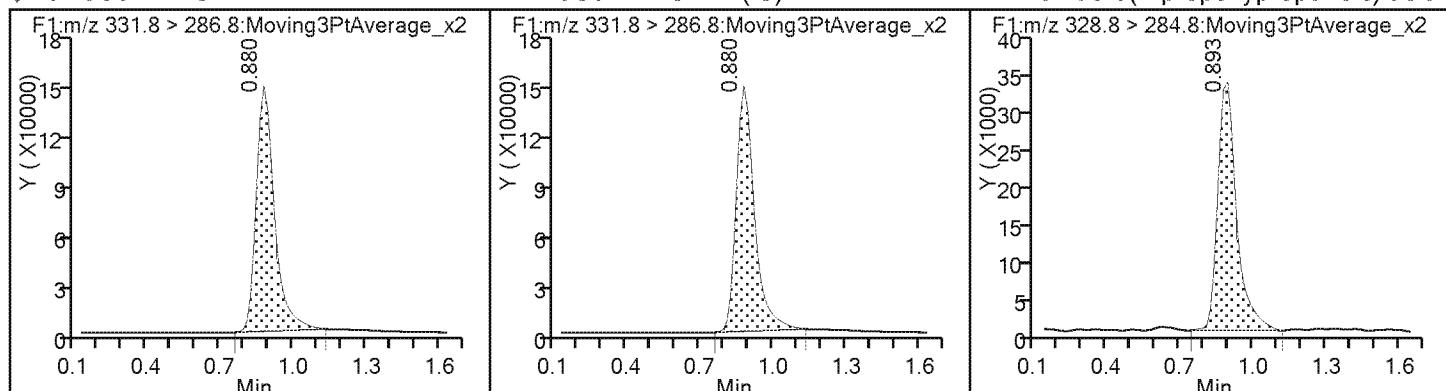
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Lab Sample ID: ICV 280-404345/14

Calibration Date: 02/08/2018 13:41

Instrument ID: LC_LCMS7

Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID:

Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718B08045.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.139		2.05	1.95	5.3	20.0
13C3 HFPO-DA	Ave	74660	76733		10.3	10.0	2.8	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08045.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 08-Feb-2018 13:41:16 ALS Bottle#: 11 Worklist Smp#: 14
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist:
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:19 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:20:35

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.056 1.045 0.011 1.000 767333 10.3 1367
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.056 1.045 0.011 1.000 767333 10.0 1367
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 170411 2.05 30.8

Reagents:

HFPO_ICV_00034 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08045.d

Injection Date: 08-Feb-2018 13:41:16

Instrument ID: LC_LCMS7

Lims ID: ICV

Client ID:

Operator ID: JBH

ALS Bottle#: 11 Worklist Smp#: 14

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

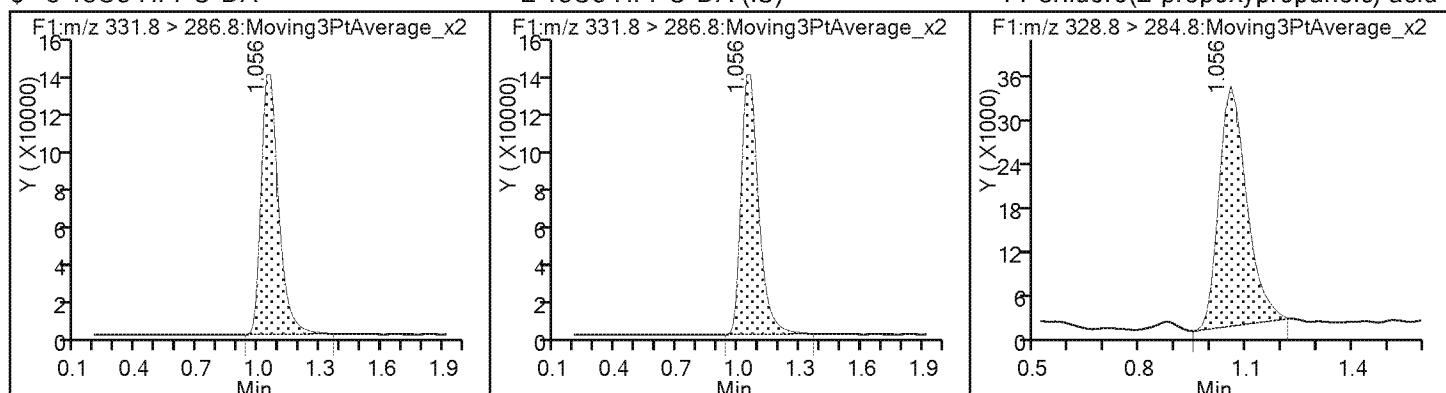
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Lab Sample ID: CCV 280-407118/40

Calibration Date: 03/07/2018 12:30

Instrument ID: LC_LCMS7

Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID:

Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C07040.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.170		11.0	10.0	9.6	20.0
13C3 HFPO-DA	Ave	74660	53340		7.14	10.0	-28.6	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07040.d
 Lims ID: CCV L6
 Client ID:
 Sample Type: CCV
 Inject. Date: 07-Mar-2018 12:30:10 ALS Bottle#: 4 Worklist Smp#: 40
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L6
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 13:22:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 13:21:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.015 1.045 -0.030 1.000 533403 7.14 1764
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.015 1.045 -0.030 1.000 533403 10.0 1764
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.029 1.056 -0.027 1.000 623868 11.0 238

Reagents:

HFPO_CAL-6_00082 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180307-67803.b\\hfp0718C07040.d

Injection Date: 07-Mar-2018 12:30:10

Instrument ID: LC_LCMS7

Lims ID: CCV L6

Client ID:

Operator ID: JBH

ALS Bottle#: 4 Worklist Smp#: 40

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

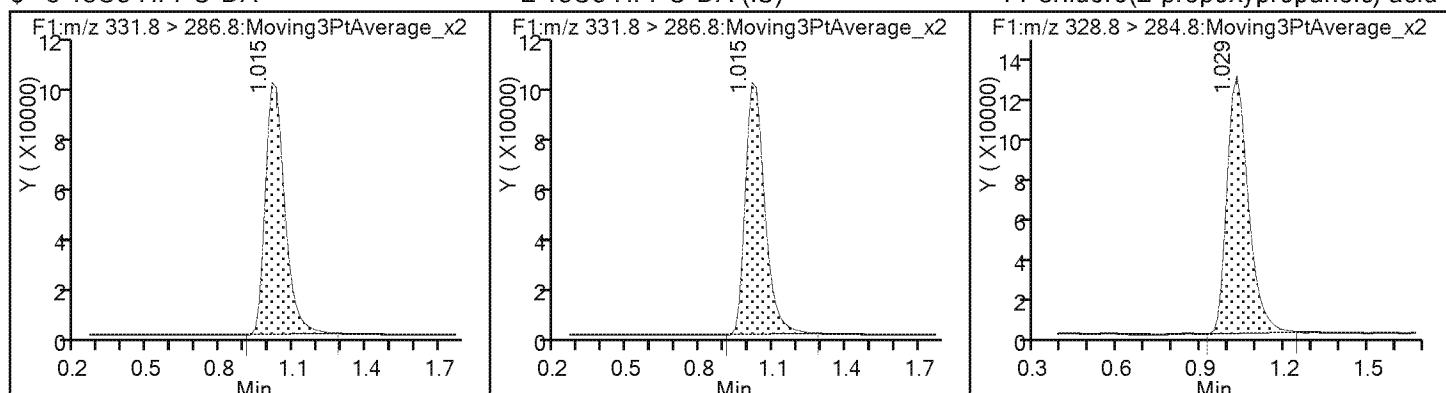
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Lab Sample ID: CCV 280-407118/51

Calibration Date: 03/07/2018 13:06

Instrument ID: LC_LCMS7

Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID:

Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C07051.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.236		5.78	5.00	15.5	20.0
13C3 HFPO-DA	Ave	74660	52674		7.06	10.0	-29.4	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07051.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 07-Mar-2018 13:06:18 ALS Bottle#: 3 Worklist Smp#: 51
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 13:22:35 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICAL File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 13:21:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
331.8 > 286.8 1.015 1.045 -0.030 1.000 526736 7.06 1860

* 2 13C3 HFPO-DA (IS)
331.8 > 286.8 1.015 1.045 -0.030 1.000 526736 10.0 1860

1 Perfluoro(2-propoxypropanoic) acid
328.8 > 284.8 1.015 1.056 -0.041 1.000 325633 5.78 114

Reagents:

HFPO_CAL-5_00082 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180307-67803.b\\hfp0718C07051.d

Injection Date: 07-Mar-2018 13:06:18

Instrument ID: LC_LCMS7

Lims ID: CCV L5

Client ID:

Operator ID: JBH

ALS Bottle#: 3 Worklist Smp#: 51

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

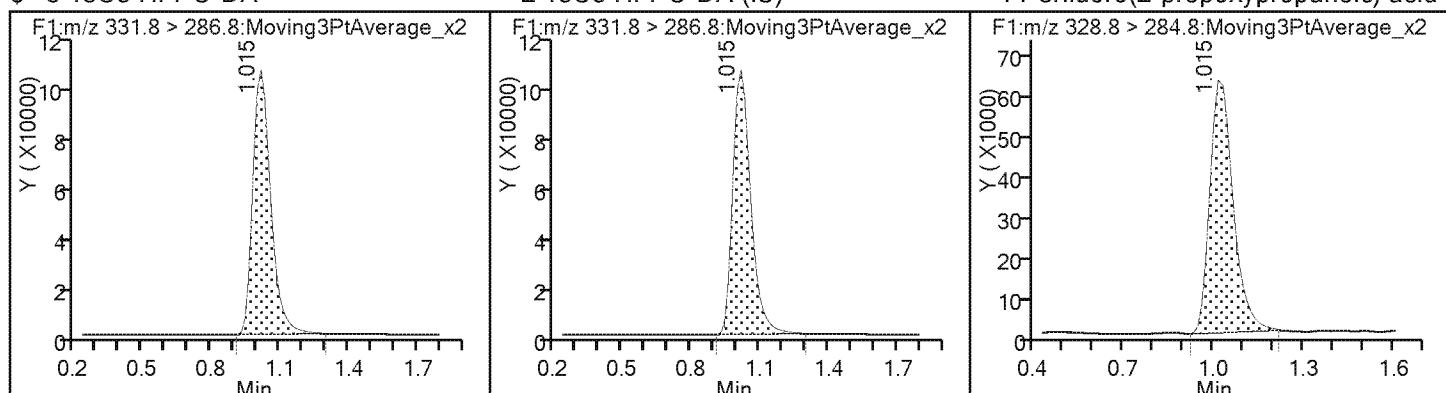
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Lab Sample ID: CCV 280-407118/62

Calibration Date: 03/07/2018 13:41

Instrument ID: LC_LCMS7

Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID:

Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C07062.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.186		11.1	10.0	11.1	20.0
13C3 HFPO-DA	Ave	74660	54109		7.25	10.0	-27.5	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07062.d
 Lims ID: CCV L6
 Client ID:
 Sample Type: CCV
 Inject. Date: 07-Mar-2018 13:41:59 ALS Bottle#: 4 Worklist Smp#: 62
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L6
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 14:50:24 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 14:48:39

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.015 1.045 -0.030 1.000 541088 7.25 1429
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.015 1.045 -0.030 1.000 541088 10.0 1429
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.015 1.056 -0.041 1.000 641597 11.1 171

Reagents:

HFPO_CAL-6_00082 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180307-67803.b\\hfp0718C07062.d

Injection Date: 07-Mar-2018 13:41:59 Instrument ID: LC_LCMS7

Lims ID: CCV L6

Client ID:

Operator ID: JBH

ALS Bottle#: 4 Worklist Smp#: 62

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

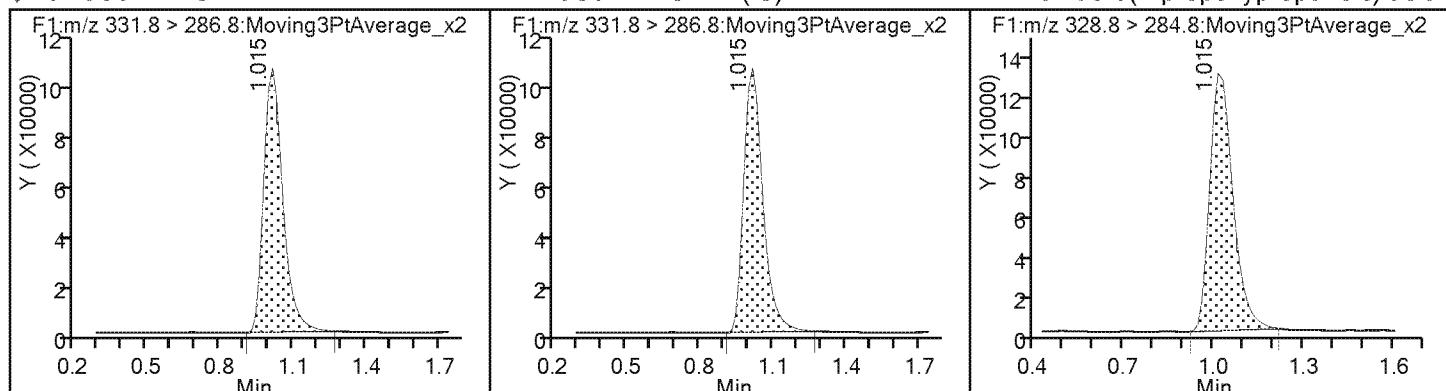
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

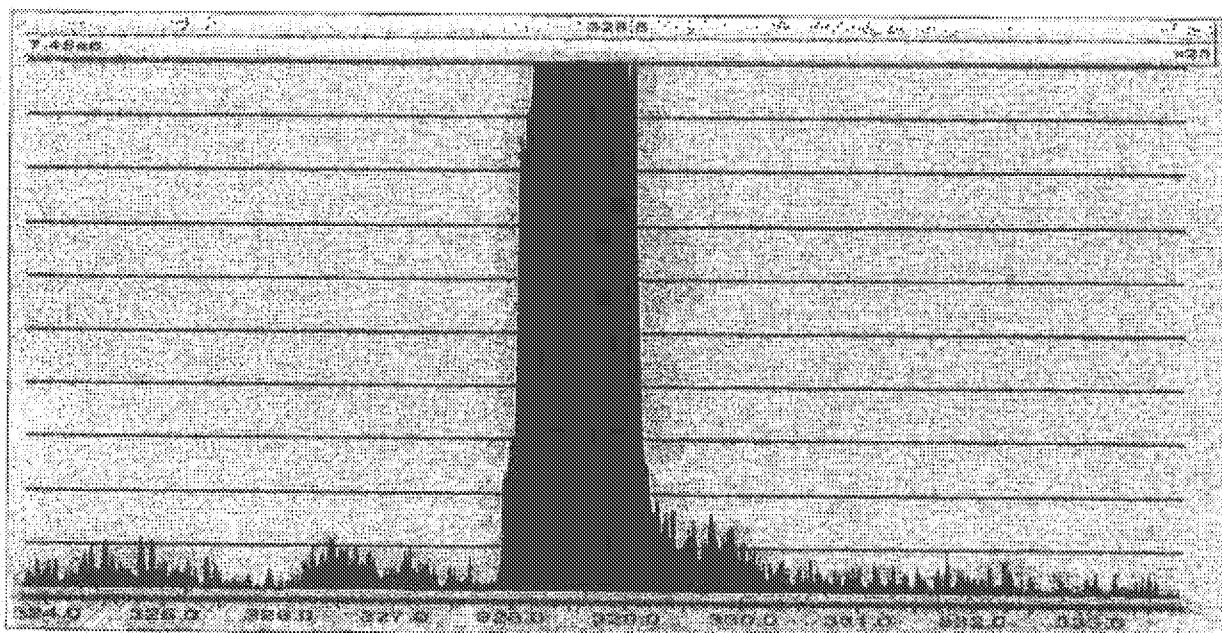
1 Perfluoro(2-propoxypropanoic) acid



File: C:\MassLynx\8321.PRO\ACQUDBHFPOMRM.lpr

Instrument: XEVO-TQMS\VBAM53

Printed: Wednesday, March 07, 2018 09:13:18 Mountain Standard Time



Type	Start Mass	End Mass	Set Mass
MS1 Scan	323.80	333.80	
Source (ES-)	Settings	Readbacks	
Capillary (kV)	0.60	0.54	
Cone (V)	10.00	-21.08	
Extractor (V)	3.00	-10.61	
Source Temperature (°C)	120	120	
Desolvation Temperature (°C)	200	200	
Cone Gas Flow (L/Hr)	50	49	
Desolvation Gas Flow (L/Hr)	800	794	
Collision Gas Flow (mL/Min)	0.15	0.04	
Analyser	Settings	Readbacks	
LM 1 Resolution	2.8		
HM 1 Resolution	14.8		
Ion Energy 1	0.7		
MS Mode Collision Energy	7.00		
MSMS Mode Collision Energy	20.00		
MS Mode Entrance	0.50		
MS Mode Exit	0.50		
Gas On MS Mode Entrance	0.50		
Gas On MS Mode Exit	0.50		
Gas On MSMS Mode Entrance	0.50		
Gas On MSMS Mode Exit	0.50		
Gas Off MS Mode Entrance	30.00		
Gas Off MS Mode Exit	30.00		
Gas Off MSMS Mode Entrance	2.00		
Gas Off MSMS Mode Exit	2.00		
ScanWave MS Mode Entrance	0.50		
ScanWave MS Mode Exit	0.50		
ScanWave MSMS Mode Entrance	0.50		
ScanWave MSMS Mode Exit	0.50		
LM 2 Resolution	2.9		
HM 2 Resolution	14.7		
Ion Energy 2	0.3		

Phenomenex
2018-4

File: C:\MassLynx8321.PRO\ACQUDB\HFPO.MRM.lpr

Instrument: XEVO-TQMS\IVBA453

Printed: Wednesday, March 07, 2018 09:13:18 Mountain Standard Time

Multiplexor 623.57
Active Reservoir A

Pressure Gauges
Collision Cell Pressure (mbar) 7.830201e-005

Instrument Configuration**Automatic Mode**

MS Inter-scan delay (secs)	0.005
Polarity/Mode switch Inter-scan delay (secs)	0.020
Enhanced Inter-scan delay (secs)	0.020

Inter-channel delay - See Tables

MS 1 Delay Table:

R	delay
<= 0.500	0.005
<= 2.000	0.008
<= 4.000	0.010
<= 11.000	0.012
> 11.000	0.014

MS 2 Delay Table:

R	delay
<= 8.000	0.005
<= 26.000	0.005
> 26.000	0.007

Phenix
3/2018

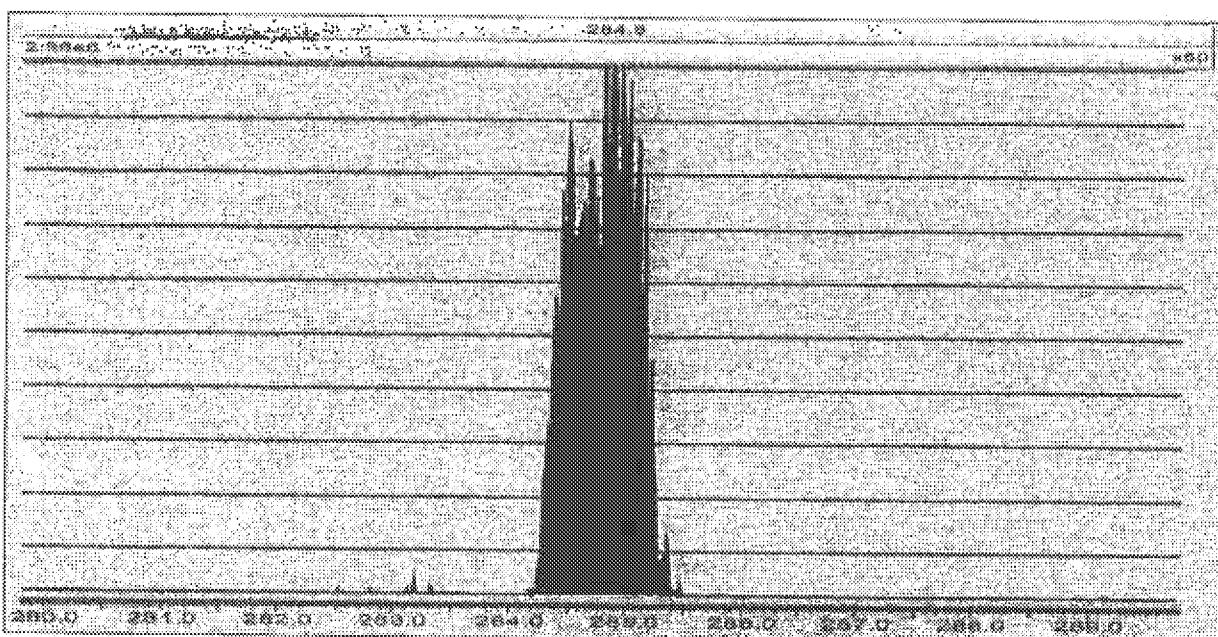
Waters Xevo TQ MS Detector Tune Parameters - MassLynx 4.1 BCN 843

Page 1 of 2

File: C:\MassLynx\3221.PRO\ACQUITYHPPOMRM.lpr

Instrument: XEVO-TQMS\IVBA463

Printed: Wednesday, March 07, 2018 08:13:56 Mountain Standard Time



Type	Start Mass	End Mass	Set Mass
Daughter Scan	279.80	289.80	328.80
Source (ES-)	Settings	Readbacks	
Capillary (kV)	0.50	0.64	
Cone (V)	10.00	-21.06	
Extractor (V)	3.00	-10.61	
Source Temperature (°C)	120	120	
Desolvation Temperature (°C)	200	200	
Cone Gas Flow (L/Hr)	50	50	
Desolvation Gas Flow (L/Hr)	800	792	
Collision Gas Flow (mL/Min)	0.15	0.14	
Analyser	Settings	Readbacks	
LM 1 Resolution	2.8		
HM 1 Resolution	14.8		
Ion Energy 1	0.7		
MS Mode Collision Energy	7.00		
MSMS Mode Collision Energy	20.00		
MS Mode Entrance	0.50		
MS Mode Exit	0.50		
Gas On MS Mode Entrance	0.50		
Gas On MS Mode Exit	0.50		
Gas On MSMS Mode Entrance	0.60		
Gas On MSMS Mode Exit	0.50		
Gas Off MS Mode Entrance	30.00		
Gas Off MS Mode Exit	30.00		
Gas Off MSMS Mode Entrance	2.00		
Gas Off MSMS Mode Exit	2.00		
ScanWave MS Mode Entrance	0.50		
ScanWave MS Mode Exit	0.60		
ScanWave MSMS Mode Entrance	0.60		
ScanWave MSMS Mode Exit	0.60		
LM 2 Resolution	2.9		
HM 2 Resolution	14.7		
Ion Energy 2	0.3		

Plating
3/4/18

File: C:\MassLynx8321.PROVACQUDBVHFPMRM.lpr

Instrument: XEVO-TQMS#VBA453

Printed: Wednesday, March 07, 2018 09:12:55 Mountain Standard Time

Multiplier 623.57
Active Reservoir A

Pressure Gauges
Collection Cell Pressure (mbar) 1.227815e-003

Instrument Configuration**Automatic Mode**

MS Inter-scan delay (secs) 0.005
Polarity/Mode switch Inter-scan delay (secs) 0.020
Enhanced Inter-scan delay (secs) 0.020
Inter-channel delay - See Tables

MS 1 Delay Table:

R	delay
<= 0.500	0.005
<= 2.000	0.008
<= 4.000	0.010
<= 11.000	0.012
> 11.000	0.014

MS 2 Delay Table:

R	delay
<= 8.000	0.005
<= 25.000	0.005
> 25.000	0.007

Plotted
3/8/18

File: c:\masslynx\8321.pro\acqdb\hfpo.exp

Printed: Wednesday, March 07, 2018 12:12:48 Mountain Standard Time

Creation Time Fri 18 Nov 2016 09:08:40
Instrument Identifier XEVO-TQMS\IVBA453
Version Number 1.0
Duration (min) 2.0
Calibration Filenames C:\MassLynx\IntellifStart\Results\Unit Mass Resolution\Calibration_20100811

.2.cal
Solvent Delay Divert Valve Enabled 0
Number Of Functions 1

Function 1 : MRM of 2 mass pairs, Time 0.00 to 2.00, ES-

Type MRM
Ion Mode ES-
Inter Channel Delay (sec) -1.000
InterScan Time (sec) -1.000
Span (Da) 0.5
Start Time (min) 0.0
End Time (min) 2.0

Ch	Prat(Da)	Dau(Da)	Dwell(s)	Cone(V)	Coll(eV)	Delay(s)	Compound
1	328.80	284.80	0.400	10.00	7.00	-1.000	HFPO
2	331.80	286.80	0.400	10.00	7.00	-1.000	HFPO IS

Printed
3/8/18

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 030518 Worklist Number: 67734
Instrument Name: SMS_G4 Chrom Method: SMSG4_8270LL
Data Directory: \\ChromNAIDenver\ChromData\SMS_G4\20180305-67734.b
QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	MSSV - 8270D_LL_DCD5 Raw Batch: 406866
# 1 DFTPP	# 1 DFTPP
# 2 ccv	# 2 ccv
# 3 lb	# 3 lb
# 4 280-106559-E-7-A	# 4 280-106559-E-7-A
# 5 280-106559-D-7-A MS	# 5 280-106559-D-7-A MS
# 6 280-106559-F-7-A MSD	# 6 280-106559-F-7-A MSD
# 7 280-106559-A-8-A	# 7 280-106559-A-8-A
# 8 280-106559-B-9-A	# 8 280-106559-B-9-A
# 9 ccvc	# 9 ccvc
#10 MB 280-406042/1-A	#10 MB 280-406042/1-A
#11 LCS 280-406042/2-A	#11 LCS 280-406042/2-A
#12 LCSD 280-406042/3-A	#12 LCSD 280-406042/3-A
#13 280-106563-B-1-A	#13 280-106563-B-1-A
#14 280-106613-B-1-A	#14 280-106613-B-1-A
#15 280-106615-A-1-A	#15 280-106615-A-1-A

03/08/2018
11:12:48

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-106852-1
SDG No.:
Client Sample ID: Lab Sample ID: MB 280-407006/1-A
Matrix: Water Lab File ID: hfpo718C07041.d
Analysis Method: 8321A Date Collected:
Extraction Method: 3535 Date Extracted: 03/06/2018 17:00
Sample wt/vol: 250 (mL) Date Analyzed: 03/07/2018 12:33
Con. Extract Vol.: 5 (mL) Dilution Factor: 1
Injection Volume: 20 (uL) GC Column: Synergi Hydro ID:
% Moisture: GPC Cleanup: (Y/N) N
Analysis Batch No.: 407118 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.010		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	65		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07041.d
 Lims ID: MB 280-407006/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 07-Mar-2018 12:33:26 ALS Bottle#: 38 Worklist Smp#: 41
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: MB280-407006/1-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 13:22:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 13:21:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.015 1.045 -0.030 1.000 487404 6.53 1731
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.015 1.045 -0.030 487404 10.0 1731

Report Date: 07-Mar-2018 13:22:30

Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180307-67803.b\\hfpo718C07041.d

Injection Date: 07-Mar-2018 12:33:26

Instrument ID: LC_LCMS7

Lims ID: MB 280-407006/1-A

Client ID:

Operator ID: JBH

ALS Bottle#: 38 Worklist Smp#: 41

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

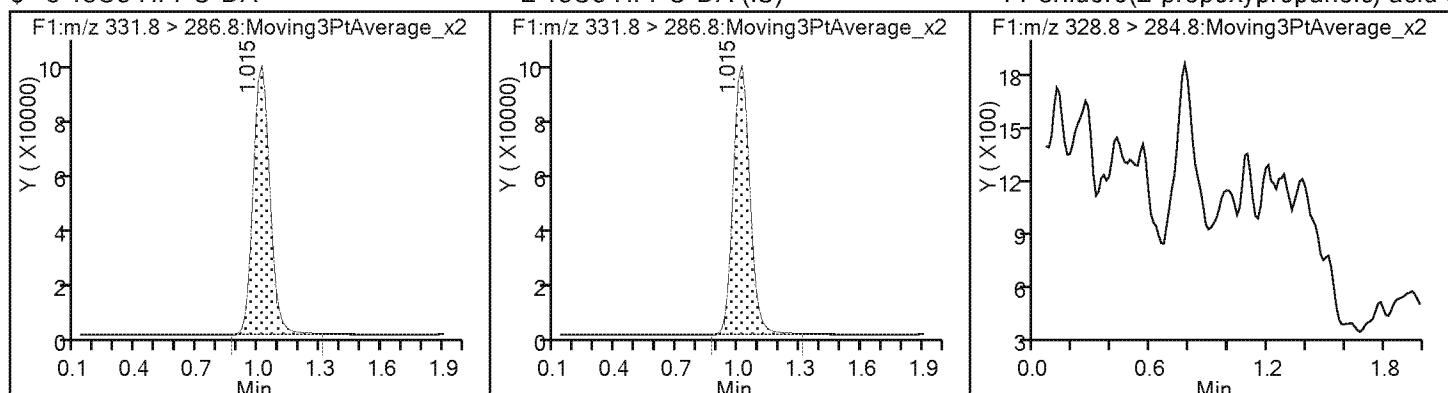
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07041.d
 Lims ID: MB 280-407006/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 07-Mar-2018 12:33:26 ALS Bottle#: 38 Worklist Smp#: 41
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: MB280-407006/1-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 13:22:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 13:21:36

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	6.53	65.28

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-106852-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: ICB 280-404345/12

Matrix: Water Lab File ID: hfpo718B08043.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: _____ Date Extracted: _____

Sample wt/vol: 1 (mL) Date Analyzed: 02/08/2018 13:34

Con. Extract Vol.: _____ Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: _____ GPC Cleanup: (Y/N) N

Analysis Batch No.: 404345 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.50		0.50	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	103		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08043.d
 Lims ID: ICB
 Client ID:
 Sample Type: ICB
 Inject. Date: 08-Feb-2018 13:34:46 ALS Bottle#: 1 Worklist Smp#: 12
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: ICB
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.056 1.045 0.011 1.000 772269 10.3 1251
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.056 1.045 0.011 1.000 772269 10.0 1251

Reagents:

HFPO_CAL-0_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08043.d

Injection Date: 08-Feb-2018 13:34:46

Instrument ID: LC_LCMS7

Lims ID: ICB

Client ID:

Operator ID: JBH

ALS Bottle#: 1 Worklist Smp#: 12

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

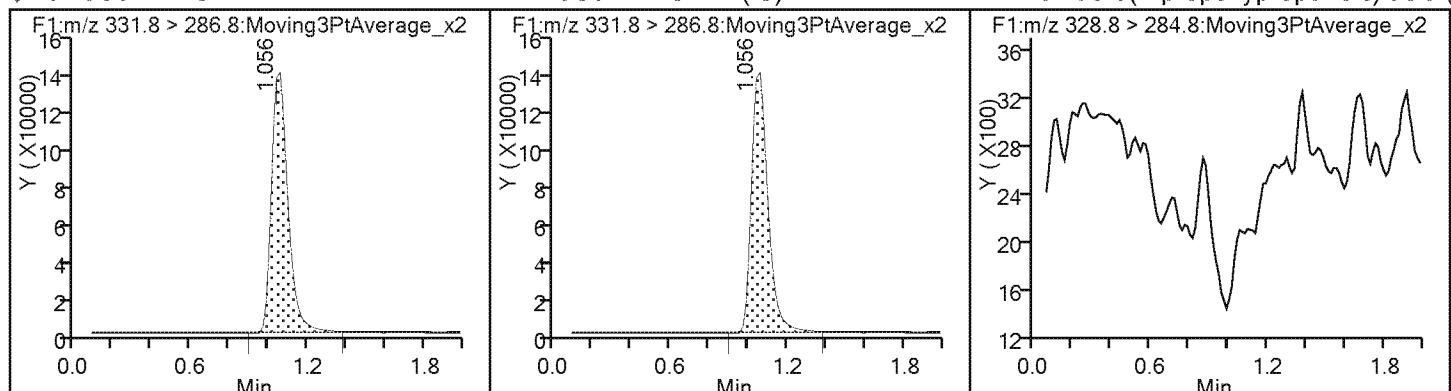
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08043.d
 Lims ID: ICB
 Client ID:
 Sample Type: ICB
 Inject. Date: 08-Feb-2018 13:34:46 ALS Bottle#: 1 Worklist Smp#: 12
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: ICB
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:42

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	10.3	103.44

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-106852-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LCS 280-407006/2-A

Matrix: Water Lab File ID: hfpo718C07042.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: 3535 Date Extracted: 03/06/2018 17:00

Sample wt/vol: 250 (mL) Date Analyzed: 03/07/2018 12:36

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407118 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.245		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	66		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07042.d
 Lims ID: LCS 280-407006/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 07-Mar-2018 12:36:44 ALS Bottle#: 39 Worklist Smp#: 42
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCS280-407006/2-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 13:22:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 13:21:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 492431 6.60 1992
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 492431 10.0 1992
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 643207 12.2 369

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180307-67803.b\\hfp0718C07042.d

Injection Date: 07-Mar-2018 12:36:44

Instrument ID: LC_LCMS7

Lims ID: LCS 280-407006/2-A

Client ID:

Operator ID: JBH

ALS Bottle#: 39 Worklist Smp#: 42

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

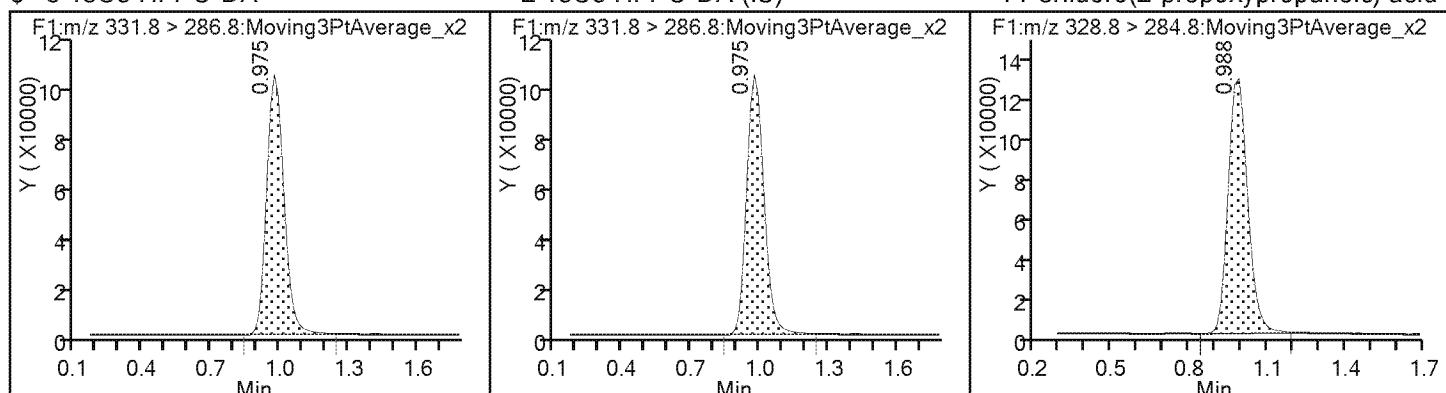
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07042.d
 Lims ID: LCS 280-407006/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 07-Mar-2018 12:36:44 ALS Bottle#: 39 Worklist Smp#: 42
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCS280-407006/2-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 13:22:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 13:21:38

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	6.60	65.96

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-106852-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LCSD 280-407006/3-A

Matrix: Water Lab File ID: hfpo718C07043.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: 3535 Date Extracted: 03/06/2018 17:00

Sample wt/vol: 250 (mL) Date Analyzed: 03/07/2018 12:40

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407118 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.248		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	66		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07043.d
 Lims ID: LCSD 280-407006/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 07-Mar-2018 12:40:00 ALS Bottle#: 40 Worklist Smp#: 43
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCSD280-407006/3-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 13:22:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 13:21:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.988 1.045 -0.057 1.000 490240 6.57 3225
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.988 1.045 -0.057 1.000 490240 10.0 3225
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 648414 12.4 334

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180307-67803.b\\hfp0718C07043.d

Injection Date: 07-Mar-2018 12:40:00

Instrument ID: LC_LCMS7

Lims ID: LCSD 280-407006/3-A

Client ID:

Operator ID: JBH

ALS Bottle#: 40 Worklist Smp#: 43

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

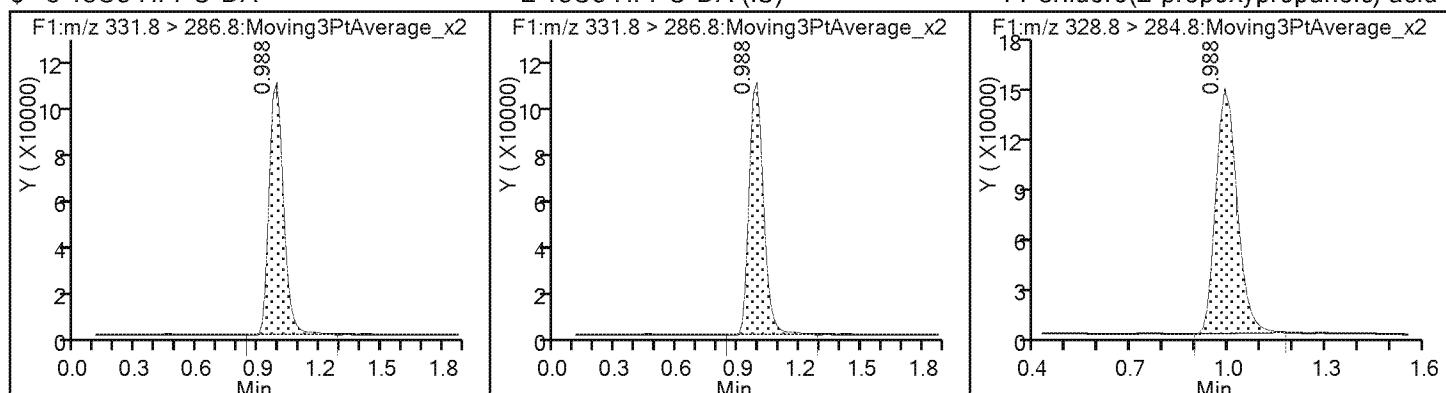
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07043.d
 Lims ID: LCSD 280-407006/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 07-Mar-2018 12:40:00 ALS Bottle#: 40 Worklist Smp#: 43
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCSD280-407006/3-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 13:22:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 13:21:40

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	6.57	65.66

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-106852-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LLCS 280-407006/4-A

Matrix: Water Lab File ID: hfpo718C07044.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: 3535 Date Extracted: 03/06/2018 17:00

Sample wt/vol: 250 (mL) Date Analyzed: 03/07/2018 12:43

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407118 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.0271		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	68		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07044.d
 Lims ID: LLCS 280-407006/4-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 07-Mar-2018 12:43:17 ALS Bottle#: 41 Worklist Smp#: 44
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LLCS280-407006/4-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 13:22:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 13:21:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.988 1.045 -0.057 1.000 504390 6.76 2601
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.988 1.045 -0.057 1.000 504390 10.0 2601
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 74414 1.35 36.5

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180307-67803.b\\hfp0718C07044.d

Injection Date: 07-Mar-2018 12:43:17 Instrument ID: LC_LCMS7

Lims ID: LLCS 280-407006/4-A

Client ID:

Operator ID: JBH

ALS Bottle#: 41 Worklist Smp#: 44

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

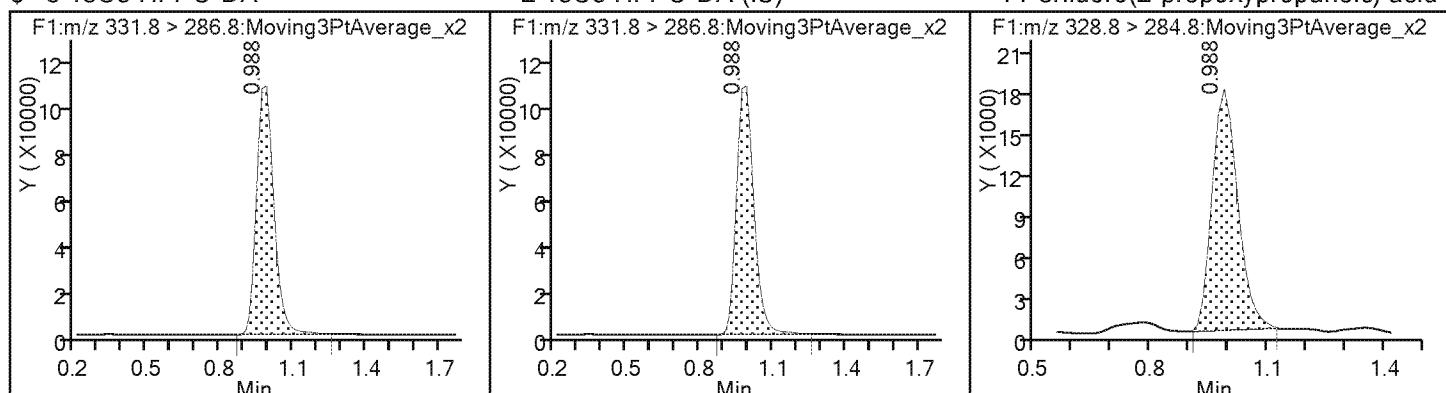
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\hfpo718C07044.d
 Lims ID: LLCS 280-407006/4-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 07-Mar-2018 12:43:17 ALS Bottle#: 41 Worklist Smp#: 44
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LLCS280-407006/4-A
 Misc. Info.: HFPO18C07
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180307-67803.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 07-Mar-2018 13:22:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK011

First Level Reviewer: meyera Date: 07-Mar-2018 13:21:43

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	6.76	67.56

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-106852-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: DLCK 280-404345/13

Matrix: Water Lab File ID: hfpo718B08044.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: _____ Date Extracted: _____

Sample wt/vol: 1 (mL) Date Analyzed: 02/08/2018 13:38

Con. Extract Vol.: _____ Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: _____ GPC Cleanup: (Y/N) N

Analysis Batch No.: 404345 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.50		0.50	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	104		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08044.d
 Lims ID: DLCK
 Client ID:
 Sample Type: DLCK
 Inject. Date: 08-Feb-2018 13:38:01 ALS Bottle#: 2 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: DLCK
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:20:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.056	1.045	0.011	1.000	776147	10.4	1241	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.056	1.045	0.011		776147	10.0	1241	
1 Perfluoro(2-propoxypropanoic) acid							M	
328.8 > 284.8	1.056	1.056	0.0	1.000	21424	0.2255	2.8	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-1_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08044.d

Injection Date: 08-Feb-2018 13:38:01

Instrument ID: LC_LCMS7

Lims ID: DLCK

Client ID:

Operator ID: JBH

ALS Bottle#: 2 Worklist Smp#: 13

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

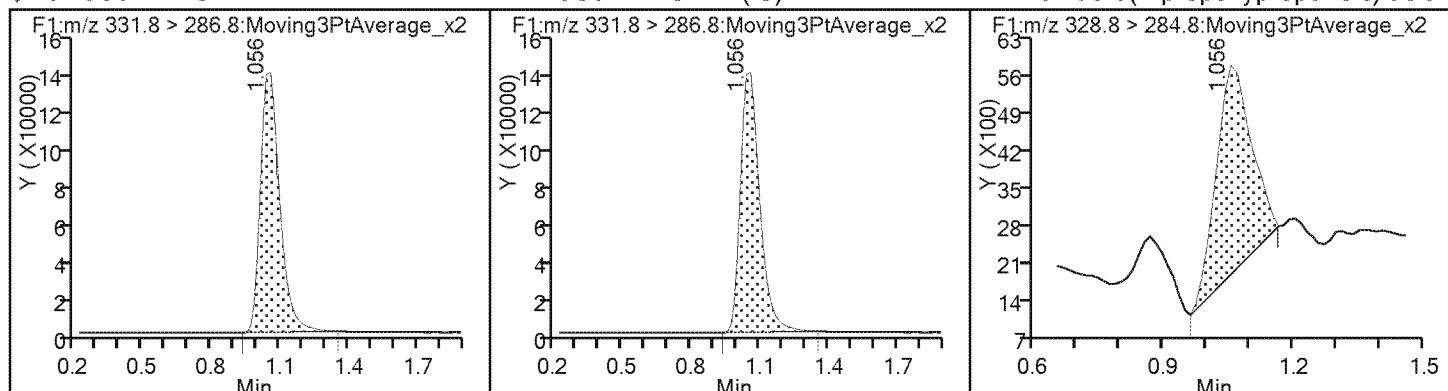
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (M)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08044.d
 Lims ID: DLCK
 Client ID:
 Sample Type: DLCK
 Inject. Date: 08-Feb-2018 13:38:01 ALS Bottle#: 2 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: DLCK
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:20:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	10.4	103.96

TestAmerica Denver

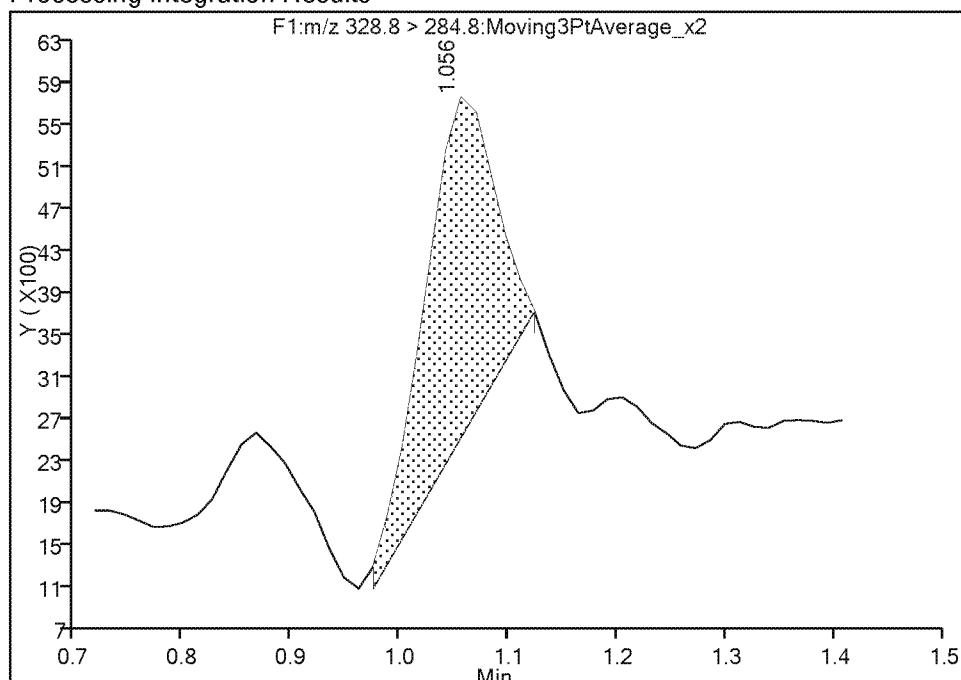
Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08044.d
 Injection Date: 08-Feb-2018 13:38:01 Instrument ID: LC_LCMS7
 Lims ID: DLCK
 Client ID:
 Operator ID: JBH ALS Bottle#: 2 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Method: HFPO Limit Group: LC - 8321A_HFPO_Du
 Column: Detector F1:MRM

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

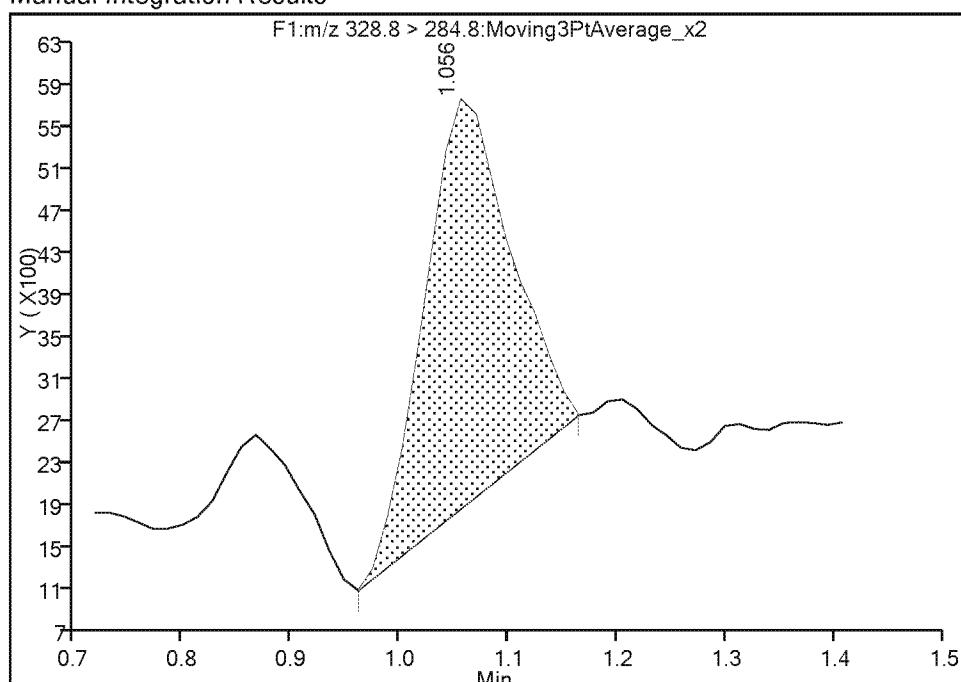
RT: 1.06
 Area: 14614
 Amount: 0.143034
 Amount Units: ug/l

Processing Integration Results



RT: 1.06
 Area: 21424
 Amount: 0.225513
 Amount Units: ug/l

Manual Integration Results



Reviewer: meyera, 08-Feb-2018 15:20:27

Audit Action: Manually Integrated

Audit Reason: Baseline

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Instrument ID: LC_LCMS7

Start Date: 10/10/2017 09:35

Analysis Batch Number: 390728

End Date: 10/10/2017 11:19

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD001 280-390728/3 IC		10/10/2017 09:35	1	hfpo717J10026.d	Synergi Hydro
STD002 280-390728/4 IC		10/10/2017 09:38	1	hfpo717J10027.d	Synergi Hydro
STD003 280-390728/5 IC		10/10/2017 09:41	1	hfpo717J10028.d	Synergi Hydro
STD004 280-390728/6 IC		10/10/2017 09:45	1	hfpo717J10029.d	Synergi Hydro
STD005 280-390728/7 IC		10/10/2017 09:48	1	hfpo717J10030.d	Synergi Hydro
STD006 280-390728/8 IC		10/10/2017 09:51	1	hfpo717J10031.d	Synergi Hydro
STD007 280-390728/9 IC		10/10/2017 09:54	1	hfpo717J10032.d	Synergi Hydro
STD008 280-390728/10 IC		10/10/2017 09:58	1	hfpo717J10033.d	Synergi Hydro
ICB 280-390728/11		10/10/2017 10:01	1		Synergi Hydro
ZZZZZ		10/10/2017 10:04	1		Synergi Hydro
ICV 280-390728/13		10/10/2017 10:07	1	hfpo717J10036.d	Synergi Hydro
ZZZZZ		10/10/2017 10:11	1		Synergi Hydro
ZZZZZ		10/10/2017 10:14	1		Synergi Hydro
ZZZZZ		10/10/2017 10:17	1		Synergi Hydro
ZZZZZ		10/10/2017 10:20	1		Synergi Hydro
ZZZZZ		10/10/2017 10:23	1		Synergi Hydro
ZZZZZ		10/10/2017 10:27	1		Synergi Hydro
ZZZZZ		10/10/2017 10:30	1		Synergi Hydro
ZZZZZ		10/10/2017 10:33	1		Synergi Hydro
ZZZZZ		10/10/2017 10:36	1		Synergi Hydro
ZZZZZ		10/10/2017 10:40	1		Synergi Hydro
CCV 280-390728/24		10/10/2017 10:43	1		Synergi Hydro
ZZZZZ		10/10/2017 10:46	1		Synergi Hydro
ZZZZZ		10/10/2017 10:49	1		Synergi Hydro
ZZZZZ		10/10/2017 10:53	1		Synergi Hydro
ZZZZZ		10/10/2017 10:56	1		Synergi Hydro
ZZZZZ		10/10/2017 10:59	1		Synergi Hydro
ZZZZZ		10/10/2017 11:02	1		Synergi Hydro
ZZZZZ		10/10/2017 11:06	1		Synergi Hydro
ZZZZZ		10/10/2017 11:09	1		Synergi Hydro
ZZZZZ		10/10/2017 11:12	1		Synergi Hydro
ZZZZZ		10/10/2017 11:16	1		Synergi Hydro
CCV 280-390728/35		10/10/2017 11:19	1		Synergi Hydro

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Instrument ID: LC_LCMS7

Start Date: 02/08/2018 13:05

Analysis Batch Number: 404345

End Date: 02/08/2018 13:41

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD001 280-404345/3 IC		02/08/2018 13:05	1	hfpo718B08034.d	Synergi Hydro
STD002 280-404345/4 IC		02/08/2018 13:08	1	hfpo718B08035.d	Synergi Hydro
STD003 280-404345/5 IC		02/08/2018 13:12	1	hfpo718B08036.d	Synergi Hydro
STD004 280-404345/6 IC		02/08/2018 13:15	1	hfpo718B08037.d	Synergi Hydro
STD005 280-404345/7 IC		02/08/2018 13:18	1	hfpo718B08038.d	Synergi Hydro
STD006 280-404345/8 IC		02/08/2018 13:21	1	hfpo718B08039.d	Synergi Hydro
STD007 280-404345/9 IC		02/08/2018 13:25	1	hfpo718B08040.d	Synergi Hydro
STD008 280-404345/10 IC		02/08/2018 13:28	1	hfpo718B08041.d	Synergi Hydro
STD009 280-404345/11 IC		02/08/2018 13:31	1	hfpo718B08042.d	Synergi Hydro
ICB 280-404345/12		02/08/2018 13:34	1	hfpo718B08043.d	Synergi Hydro
DLCK 280-404345/13		02/08/2018 13:38	1	hfpo718B08044.d	Synergi Hydro
ICV 280-404345/14		02/08/2018 13:41	1	hfpo718B08045.d	Synergi Hydro

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Instrument ID: LC_LCMS7

Start Date: 03/07/2018 12:30

Analysis Batch Number: 407118

End Date: 03/07/2018 13:41

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-407118/40		03/07/2018 12:30	1	hfpo718C07040.d	Synergi Hydro
MB 280-407006/1-A		03/07/2018 12:33	1	hfpo718C07041.d	Synergi Hydro
LCS 280-407006/2-A		03/07/2018 12:36	1	hfpo718C07042.d	Synergi Hydro
LCSD 280-407006/3-A		03/07/2018 12:40	1	hfpo718C07043.d	Synergi Hydro
LLCS 280-407006/4-A		03/07/2018 12:43	1	hfpo718C07044.d	Synergi Hydro
ZZZZZ		03/07/2018 12:46	1		Synergi Hydro
ZZZZZ		03/07/2018 12:49	1		Synergi Hydro
ZZZZZ		03/07/2018 12:53	1		Synergi Hydro
ZZZZZ		03/07/2018 12:56	1		Synergi Hydro
ZZZZZ		03/07/2018 12:59	1		Synergi Hydro
ZZZZZ		03/07/2018 13:03	1		Synergi Hydro
CCV 280-407118/51		03/07/2018 13:06	1	hfpo718C07051.d	Synergi Hydro
ZZZZZ		03/07/2018 13:09	1		Synergi Hydro
280-106852-1		03/07/2018 13:12	1	hfpo718C07053.d	Synergi Hydro
280-106852-2		03/07/2018 13:16	1	hfpo718C07054.d	Synergi Hydro
280-106852-3		03/07/2018 13:19	1	hfpo718C07055.d	Synergi Hydro
ZZZZZ		03/07/2018 13:22	1		Synergi Hydro
ZZZZZ		03/07/2018 13:25	1		Synergi Hydro
ZZZZZ		03/07/2018 13:29	1		Synergi Hydro
ZZZZZ		03/07/2018 13:32	1		Synergi Hydro
ZZZZZ		03/07/2018 13:35	1		Synergi Hydro
ZZZZZ		03/07/2018 13:38	1		Synergi Hydro
CCV 280-407118/62		03/07/2018 13:41	1	hfpo718C07062.d	Synergi Hydro

8321A

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver

Job No.: 280-106852-1

SDG No.:

Batch Number: 407006

Batch Start Date: 03/06/18 17:00

Batch Analyst: Cokley, Cheyana D

Batch Method: 3535

Batch End Date: 03/06/18 18:47

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	HFPO I.S. 00010	HFPO Spike 00004
MB 280-407006/1		3535, 8321A				250 mL	5 mL	0.1 mL	
LCS 280-407006/2		3535, 8321A				250 mL	5 mL	0.1 mL	0.1 mL
LCSD 280-407006/3		3535, 8321A				250 mL	5 mL	0.1 mL	0.1 mL
LLCS 280-407006/4		3535, 8321A				250 mL	5 mL	0.1 mL	0.01 mL
280-106852-B-1	FAY-D-FB022618	3535, 8321A	T	304.9 g	27.5 g	277.4 mL	5 mL	0.1 mL	
280-106852-D-2	FAY-D-6379TABOR-W1-1-022618	3535, 8321A	T	290.0 g	28.4 g	261.6 mL	5 mL	0.1 mL	
280-106852-D-3	FAY-D-6379TABOR-W1-2-022618	3535, 8321A	T	287.0 g	28.8 g	258.2 mL	5 mL	0.1 mL	

Batch Notes

Acid ID	2% Formic Aci_00146
Acid Name	2% Formic Acid
Balance ID	24350888
Batch Comment	Reviewer: CDC
First End time	3.6.18 1743
H2O ID	HPLC Water_00863
Pipette ID	P, SPE-1, syringe
Reagent ID	10% NH4OH
Reagent Lot Number	10% NH4OH_00122
Solvent Lot #	Methanol_00195
Solvent Name	Methanol
SOP Number	DV-OP-0019
SPE Cartridge Type	STRATA-X-AW (8B S038 FCH)
Solid Phase Extraction Disk ID	S308-0080
First Start time	3.6.18@1710

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8321A

Page 1 of 1



Reagent ID: **HFPO_CAL-6_00082**

Description:	level5	Expiration Date:	03/09/2018
No. of Bottles:	1	Laboratory:	TestAmerica Denver
Storage Location:	LCMS	Prepared By:	Meyer, Andrew GC
Reagent Volume:	1.000 mL	Solvent:	80:20 Methanol : H ₂ O
Creation Date:	02/23/2018	Solvent Lot:	00016
Open Date:			
Container(s):	4975870		
Comment:	level-5		

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
13C3 HFPO-DA	HFPO I.S._00009	02/20/2019	0.50000	ug/mL	10.00000	ug/L
13C3 HFPO-DA (IS)	HFPO I.S._00009	02/20/2019	0.50000	ug/mL	10.00000	ug/L
Perfluoro(2-propoxypropanoic) acid	HFPO Spike_00004	10/30/2018	0.50000	ug/mL	5.00000	ug/L

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
HFPO I.S._00009	Internal Standard for HFPO 0.5ug/ml		02/20/18				20.00000	uL
HFPO Spike_00004	HFPO LC/S Calibration Spike 0.6ug/ml		10/30/18				10.00000	uL

Process
Complete



Reagent ID: **HFPO_CAL-6_00082**

Description:	level6	Expiration Date:	03/09/2018
No. of Bottles:	1	Laboratory:	TestAmerica Denver
Storage Location:	LCMS	Prepared By:	Meyer, Andrew GC
Reagent Volume:	1.000 mL	Solvent:	80:20 Methanol : H ₂ O
Creation Date:	02/23/2016	Solvent Lot:	00016
Open Date:			
Container(s):	4975871		
Comment:	level-6		

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
13C3 HFPC-DA	HFPO LS_00008	02/20/2018	0.60000	ug/mL	10.00000	ug/L
13C3 HFPC-DA (IS)	HFPO LS_00008	02/20/2018	0.60000	ug/mL	10.00000	ug/L
Perfluoro(2-propoxypropanoic) acid	HFPO Spike_00004	10/30/2018	0.60000	ug/mL	10.00000	ug/L

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
HFPO LS_00008	Internal Standard for HFPO 0.6ug/ml		02/20/18				20.00000	uL
HFPO Spike_00004	HFPO LOQ/Calibration Spike 0.6ug/ml		10/30/18				20.00000	uL

Printed
>10/18

Shipping and Receiving Documents

TestAmerica Denver

4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

Chain of Custody Record																																		
Client Information		Sample ID		Lab PK#		Cutter Tracking Notes:		COC No.																										
Client Contact: Mr. Michael Autolin Company: The Chemours Company FC, LLC	Address: 60 AECOM, 4061 Ogletown Road, Suite 200 City: Newark State, Zip: DE, 19713 Phone: 302-781-5873 Email: Michael.autolin@eecon.com Present Name: AY-2018 Residential Sampling Comments:	Phone: 784-640-5746	AM CP	Johnson, Michelle E-Mail: michelle.johnson@testamerica.com				Page: 1 of 1 Rev. #:																										
Analysis Requested																																		
<p>One Date Requested:</p> <p>TAT Requested (Leave Blank): 10 Business Days</p> <p>Spec. No.: LB0-6703884201000-2221QS1000</p> <p>Project #: 2016304</p> <p>Spec. Name: HPPD-QA-LC/MS/MS</p> <p>Specified Samples (Leave Blank):</p> <p>HPPD-QA-LC/MS/MS</p> <p>Preservation Code:</p> <p>Special Instructions/Notes:</p> <p><i>Hold all volumes as retained</i></p>																																		
<table border="1"> <thead> <tr> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=Control, G=Grab)</th> <th>Matrix (Leave Blank, if unknown, check)</th> <th>Preservation Code</th> </tr> </thead> <tbody> <tr> <td>01/16/18</td> <td>0700</td> <td>C</td> <td>N</td> <td>X</td> </tr> <tr> <td>03/21/18</td> <td>0721</td> <td>G</td> <td>W</td> <td>X</td> </tr> <tr> <td>03/21/18</td> <td>1356</td> <td>G</td> <td>W</td> <td>X</td> </tr> <tr> <td>03/26/18</td> <td>1357</td> <td>G</td> <td>W</td> <td>X</td> </tr> </tbody> </table>										Sample Date	Sample Time	Sample Type (C=Control, G=Grab)	Matrix (Leave Blank, if unknown, check)	Preservation Code	01/16/18	0700	C	N	X	03/21/18	0721	G	W	X	03/21/18	1356	G	W	X	03/26/18	1357	G	W	X
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03/21/18	1356	G	W	X																														
03/26/18	1357	G	W	X																														
<p>Sample Identification</p> <p>FAK-D-6379TA802-VI-1-022618</p> <p>FAK-D-6379TA802-VI-1-022618</p> <p>FAK-D-6379TA802-VI-2-022618</p> <p>FAK-D-6379TA802-VI-2-022618</p>																																		
<p>Possible Hazard Identification</p> <p><input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison A <input type="checkbox"/> Unknown <input type="checkbox"/> Radionuclides</p> <p>Deliverable Requested: C, II, III, IV, Other (Specify): Level IV</p> <p>Empty Kit Reimbursement by:</p> <p>Prepared by: <i>B. Autolin</i></p> <p>Received by: <i>John Johnson</i></p> <p>Special Instructions/CO Requirements:</p> <p><i>Hold all volumes as retained</i></p>																																		
<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <p><input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <i>Autolin</i></p> <p>Method of Shipment:</p> <p>Date/Time: 03/21/18 1510 Company</p> <p>Date/Time: 03/21/18 1510 Company</p> <p>Date/Time: 03/21/18 1510 Company</p> <p>Date/Time: 03/21/18 1510 Company</p> <p>Comments: C and Other Parameters: 65.5 °C</p>																																		
<p>Custody Seal intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Custody Seal No.: <i>3445</i></p>																																		

Login Sample Receipt Checklist

Client: Chemours Company FC, LLC The

Job Number: 280-106852-1

Login Number: 106852

List Source: TestAmerica Denver

List Number: 1

Creator: Johnston, Michelle A

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	